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222 SECOND STREET
ENVIRONMENTAL IMPACT REPORT

DRAFT EIR PUBLICATION DATE: DECEMBER 16, 1988

DRAFT EIR PUBLIC HEARING DATE: JANUARY 19, 1988

DRAFT EIR PUBLIC COMMENT PERIOD: DECEMBER 16, 1988 - JANUARY 19, 1989

WRITTEN COMMENTS SHOULD BE SENT TO
THE ENVIRONMENTAL REVIEW OFFICER
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DATE: December 16, 1988

TO: Distribution List for the 222 Second Street Project Draft EIR

FROM: Barbara W. Sahm, Environmental Review Officer

SUBJECT: Request for the Final Environmental Impact Report for the 222 Second Street Project

This is the Draft of the Environmental Impact Report (EIR) for the 222 Second Street project. A public hearing will be held on the adequacy and accuracy of this document on January 19, 1989. After the public hearing, our office will prepare and publish a document entitled "Summary of Comments and Responses" which will contain a summary of all relevant comments on this Draft EIR and our responses to those comments. It may also specify changes to this Draft EIR. Those who testify at the hearing on the draft will automatically receive a copy of the Comments and Responses document along with a notice of the date reserved for certification (usually about nine weeks after the hearing on the draft); others may receive such copies and notice on request or by visiting our office. This Draft EIR, together with the Summary of Comments and Responses document, will be considered by the City Planning Commission in an advertised public meeting and certified as a Final EIR if deemed adequate.

After certification, we will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final Environmental Impact Report. The Final EIR will add no new information to the combination of the two documents except to reproduce the certification resolution. It will simply provide the information in one rather than two documents. Therefore, if you receive a copy of the Comments and Responses document, you will technically have a copy of the Final EIR.

We are aware that many people who receive the Draft EIR and Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final EIR to private individuals only if they request them.

If you want a copy of the Final EIR, please so indicated in the space provided on the next page and mail the request to the Office of Environmental Review within two weeks after certification of the EIR. Any private party not requesting a Final EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final EIR.

Thank you for your interest in this project.

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Department of City Planning
Office of Environmental Review
450 McAllister Street, 6th Floor
San Francisco, CA 94102

Attn.: Ms. Sally Maxwell, EIR Coordinator
86.73E - 222 Second Street

PLEASE CUT ALONG DOTTED LINE

RETURN REQUEST REQUIRED FOR FINAL ENVIRONMENTAL IMPACT REPORT

TO: Department of City Planning
Office of Environmental Review

Signed: _____

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DEPARTMENT OF CITY PLANNING

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222 SECOND STREET
DRAFT ENVIRONMENTAL IMPACT REPORT

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EIR AUTHORS AND CONSULTANTS; ORGANIZATIONS AND PERSONS CONSULTED

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INTRODUCTION

The Downtown Plan EIR, certified in 1984 (EE81.3) analyzed impacts of downtown space and employment growth under various development controls, in relation to city-wide and regional growth. Since certification of the Downtown Plan EIR, new information has become available about cumulative impacts of downtown growth. This new information has been published in the Mission Bay Draft EIR and the South of Market Plan Draft EIR. The Mission Bay EIR covers the impacts of potential development in a 300-acre area just south of the greater downtown, from Townsend St. to 16th St., east of the I-280 freeway. The South of Market Plan EIR analyses impacts of development under the proposed South of Market Plan development controls and alternatives in the area generally south of Mission St. to the Mission Bay planning area and east of U.S. 101 to the Rincon Hill area east of Second St.

The new information in these two area-wide EIRs includes revised estimates of employment growth for the Downtown & Vicinity, including Mission Bay, and for the rest of the City; revised analysis and conclusions of the overall cumulative transportation picture in the future; and new cumulative air quality information including revised emissions factors for analysis of transportation-related air quality impacts. (As used in this EIR, the term "the Downtown & Vicinity" means the C-3 District and the areas around it: South of Market, Mission Bay, South Van Ness, Civic Center, and the northeastern Waterfront. See Mission Bay EIR, Vol. II, pp. IV.4-5. This area is also occasionally called the Greater Downtown in this project EIR.)

Because the proposed project is in the Downtown planning area (the C-3 District), while the new information is from EIRs on adjacent planning areas, this project EIR cannot use tiering as defined in CEQA Sections 21093 and 21094 to include the new cumulative analysis results. Instead, incorporation by reference with a summary is used pursuant to CEQA Sections 21061 and 21100, (see also State CEQA Guidelines Sections 15150). The documents, incorporated by reference, are available for public review at the Office of Environmental Review, 450 McAllister Street, Sixth Floor, San Francisco. For topics where the Downtown Plan EIR remains current, the tiering process remains applicable when used.



I. SUMMARY

A. PROJECT DESCRIPTION

Sepulveda Properties, Inc., proposes to build a 16-story (plus two subsurface parking levels), 225-ft.-tall office and retail building at the southwest corner of the intersection of Howard and Second Sts. The project architect is Gensler and Associates.

The 23,925-sq.-ft. project site is Lots 1, 4 and 53 of Assessor's Block 3735. The project block is bounded by Howard St. on the north, Second St. on the east, Folsom St. on the south and Third St. on the west; Hawthorne St., a north-south street, bisects the project block. The project site is bounded by Howard St. on the north, Second St. on the east, Tehama St. on the south and 631 Howard St. (William Volker building) on the west.

The project would replace two vacant, two-story, concrete buildings (with a total area of about 22,000 gsf) and a 108-space valet surface parking lot (14,025 gsf). There is currently one employee on the site. As calculated under the Planning Code, the building would contain about 236,750 gross sq. ft. of floor area, excluding all non-office area. This would result in a Floor Area Ratio (FAR), the ratio of office floor area (excluding retail, parking and mechanical space) to site size, of 9.9:1 for the 23,925-sq.-ft. development site. The combined FAR for the preservation and development lots would be less than, or equal to, 6:1 in this Use District. Pedestrian entrances to the building would be on Second and Howard Sts.

Access to two truck loading docks and subsurface parking levels would be from Tehama St. The two subsurface levels would contain about 70 short-term independently accessible parking spaces and mechanical and storage space. The ground floor would contain lobby, retail and open space and two truck loading spaces. Floors two through fifteen would contain office space; the 16th penthouse floor would contain mechanical equipment. The building would include about 236,750 gsf of office space, 9,460 gsf of retail space, about 23,925 gsf of parking space (including ramps) or about 70 short-term independently accessible spaces and about 4,930 gsf of open space. Total net changes in floor area for the site would be an increase of about 231,750 gsf of office space, a decrease of about 38 parking spaces, and a decrease of about 17,000 gsf of

light manufacturing space (vacated in December 1984). Retail and open space would be new uses to the site. It should be noted that although the gross floor area devoted to parking would increase by 9,900 gsf, the number of spaces would decrease because the parking would be independently accessible instead of valet as well as the inherent inefficiency of highrise buildings.

The project would use about 93,150 gsf of transferred development rights (TDR) from as yet unidentified sites. The project's 225-ft. height, plus a 12.5-ft.-tall mechanical penthouse, would comply with the height limit for the site. The project would require approval under Sections 309 and 322 of the City Planning Code. The project would require an exception from bulk limits for the upper tower (under Section 272(a) pursuant to the provisions of Section 309); it would have a maximum length of about 135-ft. and a maximum average diagonal measure of about 170-ft., exceeding the maximum allowable length of 130-ft. and allowable maximum diagonal of 160-ft.

Demolition of the two existing buildings on the site, proposed to begin in mid-1989, would take about eight weeks. Project construction would take about 22 months. Anticipated project completion and initial occupancy is anticipated for early 1991.

B. MAIN ENVIRONMENTAL EFFECTS

LAND USE AND ZONING (pp. 48 to 57)

The site is in the C-3-0 (SD) Downtown Office Special Development Use District, and the 350-S and 150-S Height and Bulk Districts. The project would replace two vacant, two-story buildings and a 108-space parking lot with a high-rise office building, new retail and open space uses, and a net decrease in the number of parking spaces. The project would be similar to land uses to the north and east. The project would differ from land uses to the south and west, which consist predominantly of older low-rise warehouse buildings characteristic of the South of Market area along with mid- and high-rise commercial buildings.

As required by the Planning Code, the project would provide art work and child care in a manner to be determined. The required open space (4,930 gsf) would be provided on the ground floor in a greenhouse, indoor park and a linear park.

Forecasts in the Mission Bay EIR show about 94,459,000 to 94,884,000 gross sq. ft. of occupied office space in the Downtown & Vicinity in the year 2000. The range is based on different amounts of office space in Mission Bay, depending on the development program approved and built. This is an increase of about 25,000,000 to 26,000,000 gross sq. ft. over the amount existing in 1985. The forecast accounts for demolition and new construction and for conversion of existing buildings from non-office to office uses in the future. It also accounts for absorption of several million sq. ft. of office space vacant in 1985 and another several million approved or under constructions as of 1985. About 75% of the office space would be in the C-3 District. The proposed project would contribute about one-quarter of one percent of the total future amount of office space in the Downtown & Vicinity.

URBAN DESIGN (pp. 58 to 67)

The project would demolish two buildings. One of the buildings (611 Howard St.) was rated "C" by Heritage but was not rated in the 1976 Department of City Planning (DCP) inventory; the other building (613-617 Howard St.) was rated "D" by Heritage, "0" or low in the DCP inventory. Neither building is designated for architectural merit in Categories I to IV or in conservation districts of the Downtown Plan. The New Montgomery - Second Street Conservation District abuts the site to the north and west.

The 225-ft.-tall project would have a stepped pyramid design, with an articulated building facade along Howard and Second Sts. It would be visible against taller buildings in the background from long range viewpoints such as Twin Peaks, Potrero Hill and the San Francisco-Oakland Bay Bridge. The building would be similar in height and scale to other highrises north of the site near Market St. It would be larger in scale and height than existing small-scale, low- and mid-rise buildings on the same block and in the general vicinity, and would be similar in height and scale to existing mid- and high-rise buildings on the same block including 55 and 75 Hawthorne St., and in the general vicinity 90 New Montgomery St., 100 First St. and 140 New Montgomery St. (Pacific Bell).

SHADOW AND WIND (pp. 59 to 78)

The project would cast no new shadow on any Recreation and Park Department property during the hours defined by the Park Shadow Ban Ordinance and would thus comply with the ordinance. The project would cast new shadow on streets, sidewalks and buildings in the project area.

A wind tunnel test for the project site indicates that existing wind speeds do not exceed the 11 mph equivalent wind speed pedestrian comfort criterion established in the Downtown Plan at any of the 20 locations tested; the seven mph seating area criterion is not applicable as there are no seating areas in the project vicinity.

The proposed project would cause winds to increase at 10 of the 20 locations tested, exceeding the pedestrian comfort criterion at three of these locations.

HISTORIC AND CULTURAL RESOURCES (p. 79)

There is no evidence that prehistoric archaeological remains exist at the project site. The project site vicinity was first settled in the Gold Rush period (1849-1857), and remained developed through the City Building period (1858-1886), the Late Nineteenth Century period (1887-1906) and the Twentieth Century period (1906-present). The existing buildings on the project site are from the last period. The area in the vicinity of the site was cut in 1869 (the Second St. cut), so it is probable that any remains dating earlier than 1869 have been removed. Remaining artifacts could include architectural remnants, trash pits and privies. The project excavation to a depth of about 22-ft. would be about 12-ft. below the foundation level of the existing buildings.

While earlier archival research produced no evidence to suggest that noteworthy prehistoric materials may exist under the site, recent discoveries of prehistoric shellmounds in subsurface locations at 49 Stevenson Street, about two blocks north of the project site, and at other South of Market locations suggest that other deeply buried prehistoric sites may exist in the project vicinity, even in places subject to previous grading.

TRANSPORTATION (pp. 80 to 102)

The project would generate about 5,610 net new person trips per day. About 794 new outbound trips would occur during the p.m. peak period, 493 of these during the p.m. peak hour.

The project would include 70 short-term parking spaces where there are now 108 long-term valet spaces. The estimated equivalent daily parking demand from the project would be for about 200 spaces, resulting in an unmet demand of 238 spaces (200 space net new project demand plus 108 existing spaces equals 308 spaces, minus 70 spaces with project equals 238 spaces). The reduction of parking spaces at the site would result in a decrease in travel at intersections near the site.

The proposed project would generate about 240 new pedestrian trips on the adjacent sidewalks during the noon 15-minute peak period and about 170 new pedestrian trips during the p.m. 15-minute peak period. Sidewalk operations, currently in the open and unimpeded ranges at locations adjacent to the project site during the noon hour and unimpeded conditions during the p.m. peak hour, would change to the unimpeded and impeded range with the addition of the project to existing conditions; the project would cause existing conditions to change at three of the four locations studied (from open to unimpeded at two and unimpeded to impeded at one) in the noon hour peak (not in the p.m. peak hour, however).

The project would add about 188 outbound trips to Muni, 193 outbound trips to BART, and 131 new outbound trips to other transit agencies during the p.m. peak period in the year 2000. The project would generate an annual cost deficit to Muni of about \$47,376, which would be less than the project's contributions to the General Fund, the Transit Development Impact Fee, and sales tax revenues. The project would result in an annual net operating deficit to BART of about \$260,040. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future.

The transit demand from the project would represent about 0.2% of the total transit demand in the year 2000. Cumulative development under the Downtown Plan to the year 2000, in conjunction with planned capacity increases of transit carriers, would be expected to cause the following changes in transit levels of service during the peak period: Muni Northeast Corridor, D to C; BART Transbay, F to E; AC Transit, C to D; Golden Gate Ferry, B to A; Tiburon Ferry, B to C; and Caltrain, B to C.

With cumulative development by the year 2000, sidewalk and crosswalk operations would be in the unimpeded range for all locations studied for the project, except for the Howard St. and Second St. crosswalks studied during the noon period which would be in the impeded range (the project pedestrian traffic would represent between 46% and 60% of the pedestrian volumes).

Cumulative development, including that from the proposed project, by the year 2000 would be expected to further exacerbate the existing peak-hour vehicle Level of Service (LOS) "F" conditions at the intersection of First and Harrison Sts. would worsen existing LOS "A" conditions at the intersection of Second and Howard Sts. to LOS "B," would worsen existing LOS "C" conditions at the intersection of Second and Mission Sts. to LOS "D," and would worsen existing LOS "C" conditions at the intersection of Fourth and Harrison Sts. to LOS "E." Project traffic alone would not cause the LOS at either intersection to change.

The project would represent about 0.3% of total outbound regional auto demand on major corridors (bridges and freeways) in the year 2000. The project percent would not be measurable against day-to-day fluctuations in traffic volumes.

The Mission Bay and South of Market Area EIRs address transportation impacts in 2000 and 2020. Both EIRs show that by 2000, congested highway conditions would result in a shift from autos to higher use of transit and ridesharing by travelers from the Downtown & Vicinity. The East Bay would be the most congested corridor, the Peninsula would be the least. By 2020, travel demand would exceed the capacity of regional transportation systems. To serve regional growth, expanded transit and freeway systems would be required.

Regional travel was analyzed for each of the three major approaches to San Francisco; the North Bay via the Golden Gate Bridge; the East Bay via the San Francisco-Oakland Bay Bridge; and the Peninsula via the U.S. 101 and I-280 freeways. The analysis for 2000 is based on comparing the projected demand for transportation system capacities developed for 2000 as a base and identifies additional capacity above the 2000 level that would be needed to serve the travel demands of 2020.

Growth in the entire Downtown & Vicinity and the rest of the region, rather than growth in South of Market of Mission Bay alone, would be the primary source of travelers trying to cross the Golden Gate and Bay Bridges, and to use the U.S. 101 and I-280 freeways at peak hours.

To analyze cumulative impacts on Muni, individual Muni routes were grouped on the basis of the location of their alignments and stops into the "Northeast," "Northwest," "Southwest," and "Southeast" areas of San Francisco, referred to as "screenlines." By 2000, ridership would generally be accommodated on the Muni screenlines. Slight overcrowding would occur on the Northwest screenline during the p.m. peak hour, and on the Northeast screenline during the p.m. peak period. However, by 2020, all but the Southwest screenline would be operating beyond Muni's load standard. Additional service required could include new light rail service to the Geary Boulevard corridor to the Northwest, and to the Bayshore corridor in the Southeast area of the City.

The City Planning Code would require and the project would provide two loading spaces or their equivalent. Access to the truck loading docks would be on Tehama St.

Sidewalk detours and curb lane closures on the Howard St. and Second St. project frontages would be necessary during construction. The sidewalk on the project frontage along Tehama St. would be closed during construction. Demolition and excavation would generate an average of about 15 truck round trips per day. Construction truck traffic would be limited to the period between 9 a.m. and 3:30 p.m. Construction traffic would slow traffic movements along Howard and Second Sts., including those of Muni buses.

AIR QUALITY (pp. 102 to 106)

Project-related vehicular traffic would add to cumulative regional pollutant emissions. Project-related traffic would contribute less than one percent of transportation related emissions resulting from development in the County, based on BAAQMD Emissions Summary Report. Emissions of particulates generated by the project and cumulative development would increase particulate concentrations, which would increase the frequency of particulate standards violations in San Francisco, with concomitant health effects and reduced visibility.

Project emissions alone would not cause any standards to be violated, and local CO concentrations are predicted to be less in 2000 than in 1985, because the effects of emission controls on new vehicles would offset increases in traffic volumes and congestion.

CONSTRUCTION NOISE (pp. 107 to 111)

Project construction would temporarily increase noise and vibration levels in the area of the site during the 16- to 20-month construction period. Highest average construction noise levels experienced in residences or offices and stores (depending on whether piledriving were to occur at night or during daytime hours) near the site could interfere with rest and speech. Pile driving and the operation of construction equipment could temporarily raise the noise level up to 105 dBA with windows open and 90 dBA with windows closed in adjacent buildings. Pile driving would cause vibrations, which are more irritating to some people than noise, in adjacent and nearby buildings.

SEISMICITY (p. 112)

The Downtown & Vicinity, like other parts of San Francisco and the Bay Area, is subject to potentially large earthquakes from the San Andreas and Hayward faults. Employment growth,

such as that expected for 222 Second St., would result in large numbers of persons being exposed in the future to earthquake hazards if an event occurred during the day. Since new buildings are subject to more stringent building and structural standards than are older buildings, persons working in buildings such as the proposed project would be relatively safer than those in some older buildings.

POPULATION AND EMPLOYMENT (pp. 112 to 116)

The project would accommodate about 940 net new employees in the C-3 District. There would be a net increase of about 885 office employees, a net increase of about 30 retail employees and a net increase of about 25 building maintenance/security employees. About 2,045 additional jobs in the Bay Area would result from the employment multiplier effect of project operation. The project would require about 160 person-years of construction labor. About 105 additional person-years of employment would be generated in the Bay Area, as a result of the multiplier effect of project construction. Housing demand generated by the project would be approximately 89 units in San Francisco, according to the formula in Section 313 (OAHPP, Ordinance 358-85).

Regardless of the type of development in Mission Bay and in South of Market, the importance of San Francisco employment as a factor affecting regional housing demand will decline over time because more housing will be added in the City relative to job growth, compared to the situation in the past. As housing and the labor force continue to grow more rapidly outside San Francisco, people working in San Francisco will represent the same or a smaller percentage of the employed people living elsewhere in the region. San Francisco workers will require about the same share of the region's housing in the future as they did in the early 1980's. San Francisco's effects on the regional housing market will vary in the future. City workers could become more important to the housing market in some close-in communities in western parts of the East Bay and east of the hills along BART corridors, in northern San Mateo County and parts of Marin.

About half of the people working in the Downtown & Vicinity would live in the City in 2000 and 2020. The rest would live in communities throughout the rest of the region: about 30% in the East Bay, 13% in the Peninsula and in the South Bay and about 8% in the North Bay. Downtown & Vicinity workers living in the City would represent about 57% of the City's employed residents. People working downtown would represent a considerably smaller proportion (about 4-9%) of the employed residents of other Bay Area communities.

GROWTH INDUCEMENT (pp. 116 to 117)

Increases in downtown office space from the proposed project would contribute to growth of local and regional markets for housing, goods and services. Although employment growth would not be reflected directly in increases in demand for housing and City services to residents, it is expected that some downtown workers would want to live in San Francisco, intensifying the demand for housing, retail goods and services. The project would locate office and business service jobs historically located in this area, in the C-3-0 district. The project would be built in a developed urban area, and would require no expansion to the municipal infrastructure not already under consideration.

C. MITIGATION MEASURES (pp. 118 to 128)

Major measures identified that would mitigate potentially significant environmental effects include the following:

MEASURES PROPOSED AS PART OF THE PROJECT

- During the construction period, construction truck movement would not be permitted between 7 a.m. to 9 a.m. and 3:30 p.m. to 6 p.m. to minimize peak-hour traffic conflicts and to accommodate queueing of Muni buses on Second St. prior to the peak hours. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Bureau of Engineering of the Department of Public Works, the Fire Department, Muni and the Department of City Planning to determine feasible traffic mitigation measures to reduce traffic congestion during construction of this project and other nearby projects. To minimize cumulative traffic effects of lane closures during construction, the project sponsor would coordinate with construction contractors for any concurrent projects that are planned for construction or later become known.
- The project sponsor would contribute funds for maintaining and augmenting transportation service in an amount proportional to the demand created by the project, as provided by the Board of Supervisors Ordinance No. 224-81.

- The project sponsor would: 1) participate with other project sponsors and/or the San Francisco Parking Authority in undertaking studies of the feasibility of constructing an intercept commuter parking facility in a location appropriate for such facility to meet the unmet demand for parking for those trips generated by the project which cannot reasonably be made by transit, and 2) participate with other project sponsors and/or the Municipal Railway in studies of the feasibility of the establishment of a shuttle system serving the project site and the parking facility.
- As recommended by the Environmental Protection Element of the San Francisco Master Plan, an analysis of noise reduction measures would be prepared by the project sponsor and recommended noise insulation features would be included as part of the proposed building. For example, such design features could include fixed windows and climate control.

MEASURES THAT COULD BE IMPLEMENTED BY PUBLIC AGENCIES

- Through San Francisco Committee for Utility Liaison on Construction and Other Projects (CULCOP), PG&E could coordinate work schedules with other utilities requiring trenching, so that street disruption would take place at off-peak hours and on weekends, and at the same time that the street would be opened for construction of the project.
- The City could implement the transportation improvements described in the Downtown Plan. Cumulative transportation impacts within San Francisco would be reduced by the improvements, and to the extent that San Francisco could influence transportation improvements recommended by the Plan for areas outside the City, cumulative regional impacts caused by downtown growth would also be reduced.

D. ALTERNATIVES TO THE PROPOSED PROJECT (pp. 130 to 136)

ALTERNATIVE A: NO PROJECT

This alternative would entail no change to the site, since the proposed project would not be built there. The two existing buildings and the parking lot would be retained.

This alternative could result in the development of other office space, possibly a highrise building comparable to the project, at another location. Alternative development within the San Francisco downtown area would result in many of the same impacts as described for the project.

The effects of development would depend largely on the location chosen and cannot be accurately determined. This alternative would preserve the option to develop a similar or different type of building on the site in the future.

ALTERNATIVE B: NO TRANSFER OF DEVELOPMENT RIGHTS, 5.8:1 FAR

The project as proposed would include the transfer of about 93,150 gsf of development rights from as-yet unidentified sites. This alternative considers a building without TDR. The FAR would be 5.8:1, less than the basic allowable FAR (6:1) without TDR, instead of 9.9:1 for the project. Office space would be 139,500 sq. ft. compared to 236,750 sq. ft. for the project. The building would be seven stories tall (about 103 ft.) compared to 16-stories (about 225 ft.) for the project. Retail space would be the same as for the project. This alternative would have only one basement with about 30 parking spaces compared to 70 spaces for the project. This alternative would comply with all City Planning Code requirements.

Shadows from this alternative would be about 55% less than with the project. This alternative building would not result in winds exceeding the pedestrian comfort criterion at any one of the 20 locations tested (compared to three locations with the project). Travel demand, air quality and energy impacts associated with on-site uses would be about 39% less than those of the proposed project because of the smaller amount of office space than with the project. This alternative would result in less traffic and fewer air quality effects at local intersections than with the project. Construction noise impacts would be of a shorter duration, as the construction period would be shorter. Potential effects on cultural resources would be less with this alternative, as the depth of excavation would be less compared to the project. This alternative would provide employment for about 565 employees, compared to about 940 employees with the project. It would generate a demand for about 52 new dwelling units in San Francisco, compared to 89 with the project.

ALTERNATIVE C: MAXIMUM FLOOR AREA WITH TRANSFER OF DEVELOPMENT RIGHTS, 18:1 FAR

This alternative considers a building using the maximum allowable transfer of development rights (TDR) within the permitted envelope taking into consideration shadow on Second St. to obtain the maximum allowable FAR of 18:1 for this site. Office space in this alternative would

be about 430,650 sq. ft. (compared to 236,750 sq. ft. with the project). The building would be 27 stories tall (about 385 ft.) compared to 17-stories (225 ft.) with the project. Retail space and parking area would be as for the project. This alternative would require 287,180 sq. ft. of TDR (compared to 93,150 gsf with the project).

Shadows from this alternative would be about 55% greater than with the project. Wind effects would be greater than with the project. Alternative C would result in winds exceeding the pedestrian comfort criterion at five of the 20 locations tested (compared to three locations with the project). Travel demand, air quality and energy impacts associated with on-site uses would be about 65% greater than those of the proposed project because of the larger amount of office space than with the project. Traffic and air quality effects on local intersections would be the same as with the project. Construction noise impacts would be of a longer duration, as the construction period would be longer for this alternative. Effects on cultural resources would be also the same as with the project, as the depth of excavation would be the same as with the project. This alternative would provide employment for about 1,450 employees, compared to about 940 employees for the project. It would generate a demand for about 166 new dwelling units in San Francisco, compared to 89 for the project.

ALTERNATIVE D: NO PARKING

This alternative would have no parking spaces (the project would have 70 spaces); other uses, building dimensions, design elements and floor areas would be as for the project. One basement level would be eliminated, the other would contain only service/mechanical/storage space.

Except for impacts on traffic and air quality at local intersections, and cultural resources, all impacts of this alternative would be as for the project (land use, urban design, shadow, wind, construction noise, employment and growth inducement). This alternative would result in no automobile traffic from the site and thus less effect than the proposed project at local intersections. Because this alternative would have no parking spaces, none of the 108 spaces now on the site would be replaced. This alternative would have less potential effect on cultural resources than would the project.

II. PROJECT DESCRIPTION

A. PROJECT SPONSOR'S OBJECTIVES

Sepulveda Properties, Inc., proposes to build a 16-story, 225-ft.-tall office and retail building at the southwest corner of the intersection of Howard and Second Sts. The project architect is Gensler and Associates of San Francisco. The project sponsor's objectives are to develop high quality office and retail space at one of the City's emerging prime office space locations with excellent transportation access.

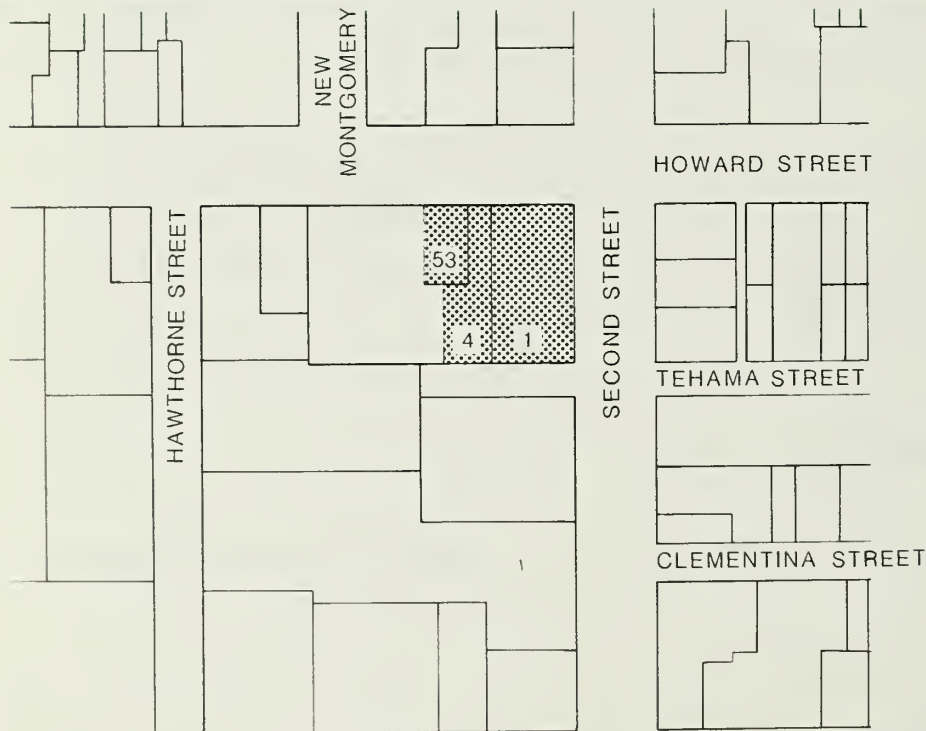
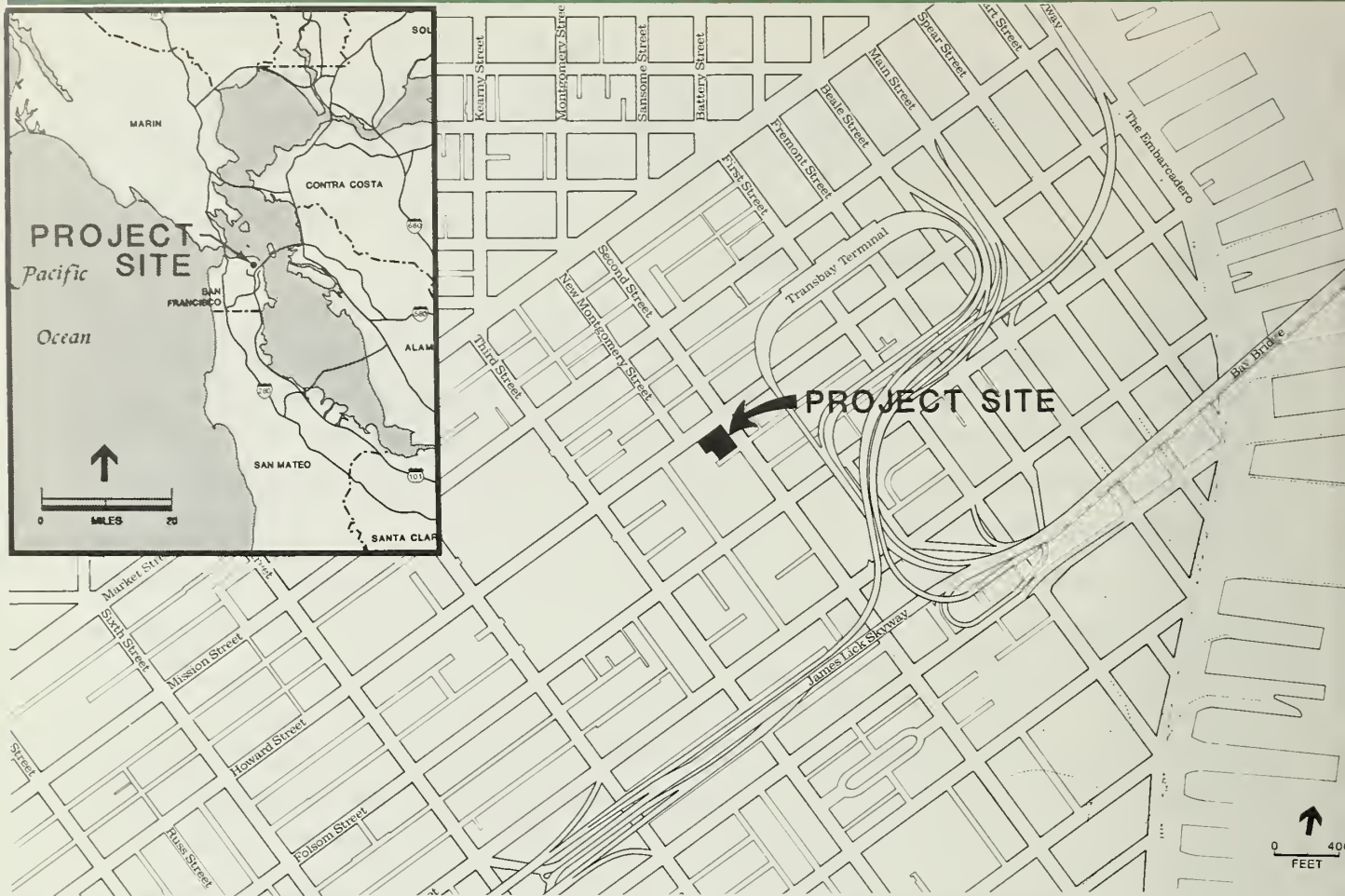
B. PROJECT LOCATION

The proposed project would be located at 222 Second St., at the southwest corner of the intersection of Howard and Second Sts. The 23,925-sq.-ft. project site is located on Lots 1, 4 and 53 of Assessor's Block 3735. The project site is bounded by Howard St., Second St., Tehama St. and 631 Howard St. (see Figure 1, p. 15). The project would replace two vacant, two-story concrete buildings (with a total area of about 22,000 gsf) formerly occupied by W. A. Palmer Films, Inc., and a 108-space valet surface parking lot (14,025 gsf).

The site is in the C-3-O (SD) Downtown Office Special Development District. The basic Floor Area Ratio (FAR) is 6:1. The 350-S (Lots 1 and 4) and 150-S (lot 53) Height and Bulk districts for the site allow maximum heights of 385-ft. and 165-ft., respectively, including optional upper tower extension of 10% of building height.

C. PROJECT CHARACTERISTICS

Project characteristics are summarized in Table 1. The 225-ft.-tall project would be a 16-story building including a 12.5-ft.-tall mechanical penthouse, plus two subsurface levels. The total area of the building would be about 315,000 gross square feet (gsf). As calculated under the City Planning Code, the building would contain about 236,750 gsf of office floor area. The Floor Area Ratio (FAR), for the project would be about 9.9:1 on the 23,925-sq.-ft.



PROJECT SITE

(Assessor's Block 3735,
Lots 1, 4 & 53)

222 SECOND STREET

FIGURE
PROJECT LOCATION

TABLE 1: PROJECT CHARACTERISTICS

NUMBER OF STORIES OF NEW CONSTRUCTION/a/		HEIGHT AND BULK MEASUREMENTS (ft.) AND FAR		
			Allowable	Proposed Project
Retail/Lobby/		Height	350 /b/	225
Service (loading)	1	Lower Tower Length:	160	135
Office	14	Diagonal:	190	175
Mechanical	1	Upper Tower Length:	130	135
Total Stories	16/a/	Diagonal:	160	170
		Volume Reduction	24%/c/	36%
Site Size: 23,925 sq. ft.		Basic FAR of 6:1.		
		TDR/d/ up to 18:1		FAR: 9.9:1/d/
PROPOSED FLOOR AREA OF NEW CONSTRUCTION		Area Applicable To FAR (gsf)	Total Gross Floor Area (gsf)	
Basement Parking, Mechanical and Service		0 /e/	47,850/f/	
Lobby, Retail and other Ground Floor Uses		0 /e/	23,925/g/	
Offices		236,750	236,750	
Mechanical (16th Floor)		0 /e/	6,525	
TOTAL		236,750	315,050	

/a/ Excluding the two basement levels, containing parking, two truck loading spaces, mechanical equipment and building storage.

/b/ The project site is located in the 350-S and 150-S Height and Bulk districts. Under City Planning Code Section 263.5, additional height up to ten percent (385 ft. and 165 ft.) may be allowed, provided the volume of the upper tower extension (above 350 ft. and 150 ft.) is reduced. The project would not exceed the 150 ft. height limit on Lot 53.

/c/ The volume reduction applies above 160 ft.; 24% is the minimum required.

/d/ To permit the FAR on the development site to exceed 6:1, about 93,150 gsf of transferable development rights (TDR) would be transferred from an as yet unidentified site, under Section 128 of the City Planning Code. The Floor Area Ratio (FAR) of the combined development and preservation lots would not exceed 6:1, if both projects were in the same Use District.

/e/ In Section 102.8(b)1-16: exclusions from gross floor area in the C-3-0 (SD) district are defined. Examples are convenience, retail and personal service and pedestrian circulation and building service space located on the ground-floor and mezzanine levels (not to exceed 75% of ground-floor interior and open space areas), and mechanical and building storage space.

/f/ With entry and exist ramps excluded, there would be about 16,570 gsf of parking space (seven percent of the gross floor area of the building). Under Section 204.5(c) of the Code, parking area up to seven percent of the gross floor area of the building may be considered accessory parking and excluded from the FAR calculation.

/g/ The project would include about 9,460 gsf of retail space on the ground floor.

SOURCE: Environmental Science Associates, Inc., and Gensler and Associates

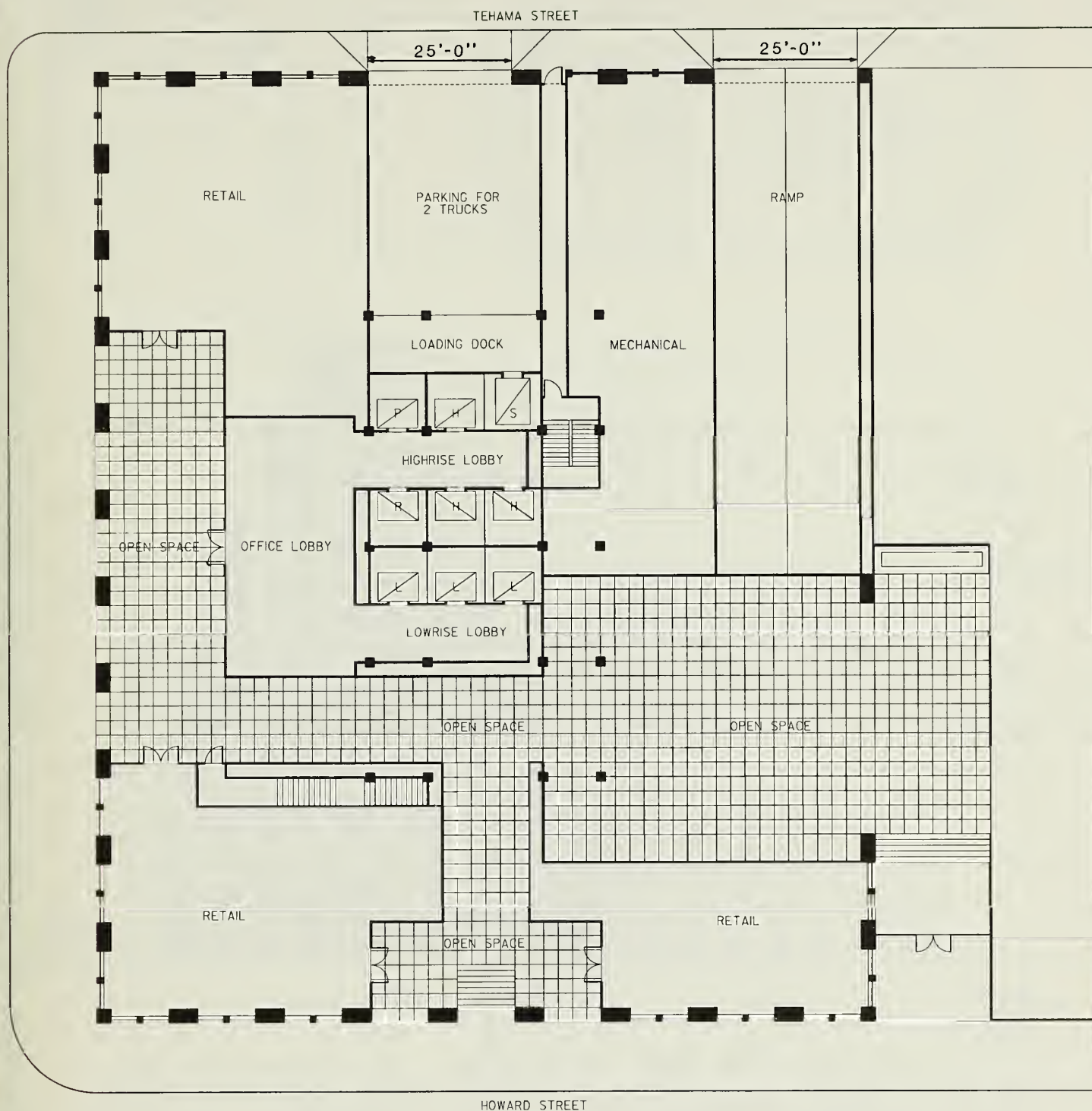
development site. The basic allowable FAR for the site is 6:1. Development up to a maximum FAR of 18:1 is allowable through Transfer of Development Rights (TDR) from sites in any C-3 district (because the project is in the C-3-0 (SD) district) that contain architecturally significant buildings with unused potential floor area. The project would use about 93,150 gsf of transferred development rights (TDR). The project sponsor has not yet identified buildings from which development rights would be sought. The overall FAR for the development and preservation lots would be 6:1, if both projects were in this Use District.

The building would include about 236,750 gsf of office space, 9,460 gsf of retail space, about 23,925 gsf of parking space including ramps (16,570 gsf excluding ramps) or about 70 short-term independently accessible spaces, and about 4,930 gsf of open space. Total net changes in floor area for the site would be an increase of about 231,700 gsf of office space, a decrease of about 38 parking spaces (although the area devoted to parking would increase by 9,900 gsf, the number of spaces would decrease because the parking would be independently accessible instead of valet and also because of the inherent inefficiency of high-rise buildings), and a decrease of about 17,000 gsf of light manufacturing (vacated in December 1984). Retail and open space would be new uses to the site.

The ground floor would be of double-height and would contain lobby space, retail area and open space. The project would include about 4,930 sq. ft. of open space. The open space would consist of three types: greenhouse, indoor park, and linear park (arcade-type open space, open to the street but covered). It would feature hanging plants, shrubs and water features. Interior walkways would allow pedestrians to pass through the site between Second and Howard Sts. A four story atrium would be located on the west side of the project. The two basement levels would contain mechanical and storage space (on the first basement level) and about 70 short-term independently accessible parking spaces (on the second - lower basement level). Two truck loading spaces would be located on the ground floor with access from and exit onto Tehama St. The basement level parking would also be accessible from Tehama St. The ground floor would contain retail uses, pedestrian circulation and entrances on Howard and Second Sts., open space; and the two truck loading docks and garage entrance on Tehama St.

Floor plans and elevations are shown in Figures 2 to 5, pp. 18 to 21. The base, as defined by the Downtown Plan (height equal to 1.25 times the width of the widest abutting street, Howard St.), would include floors one through seven. The lower tower would be floors eight through 11 with

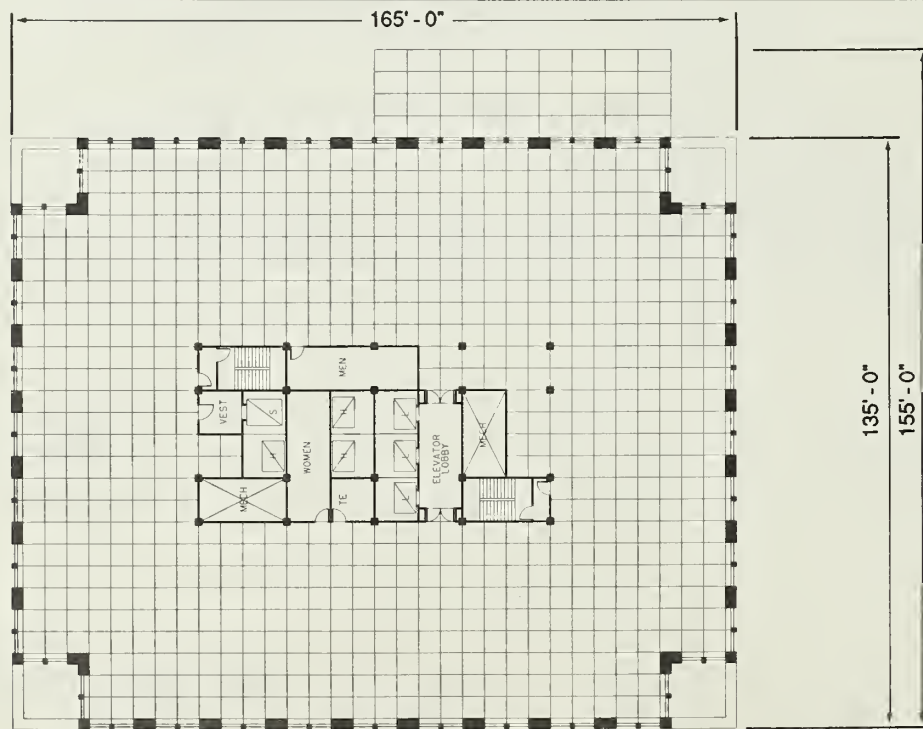
SECOND STREET



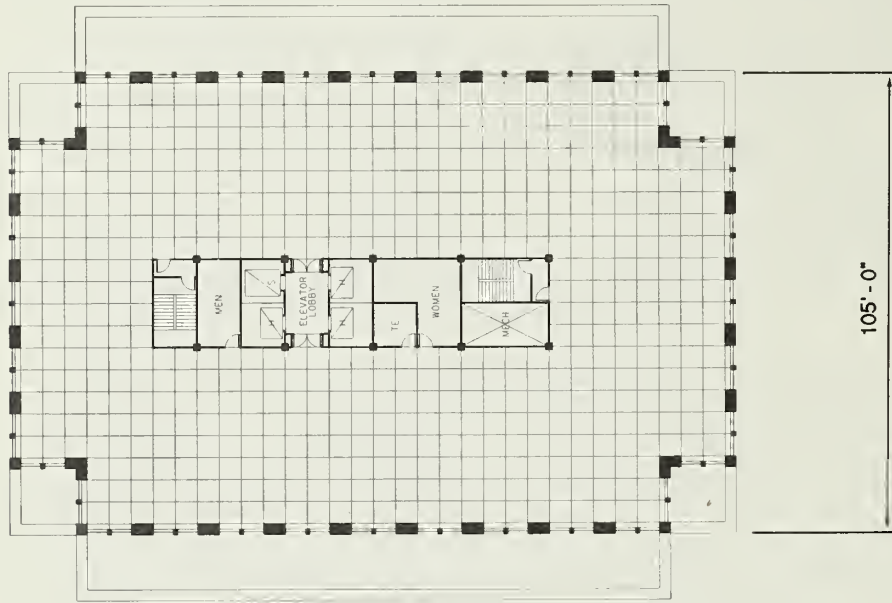
222 SECOND STREET

FIGURE 2
GROUND FLOOR PLAN

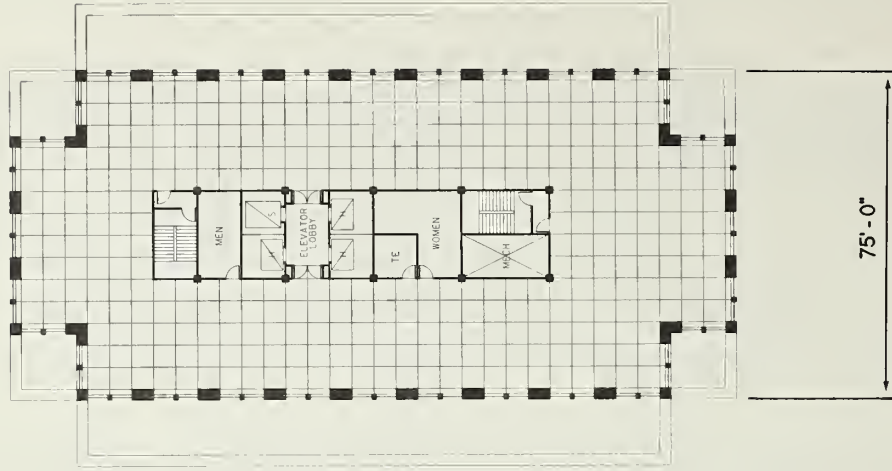
SOURCE: Gensler and Associates



FLOORS 2-7

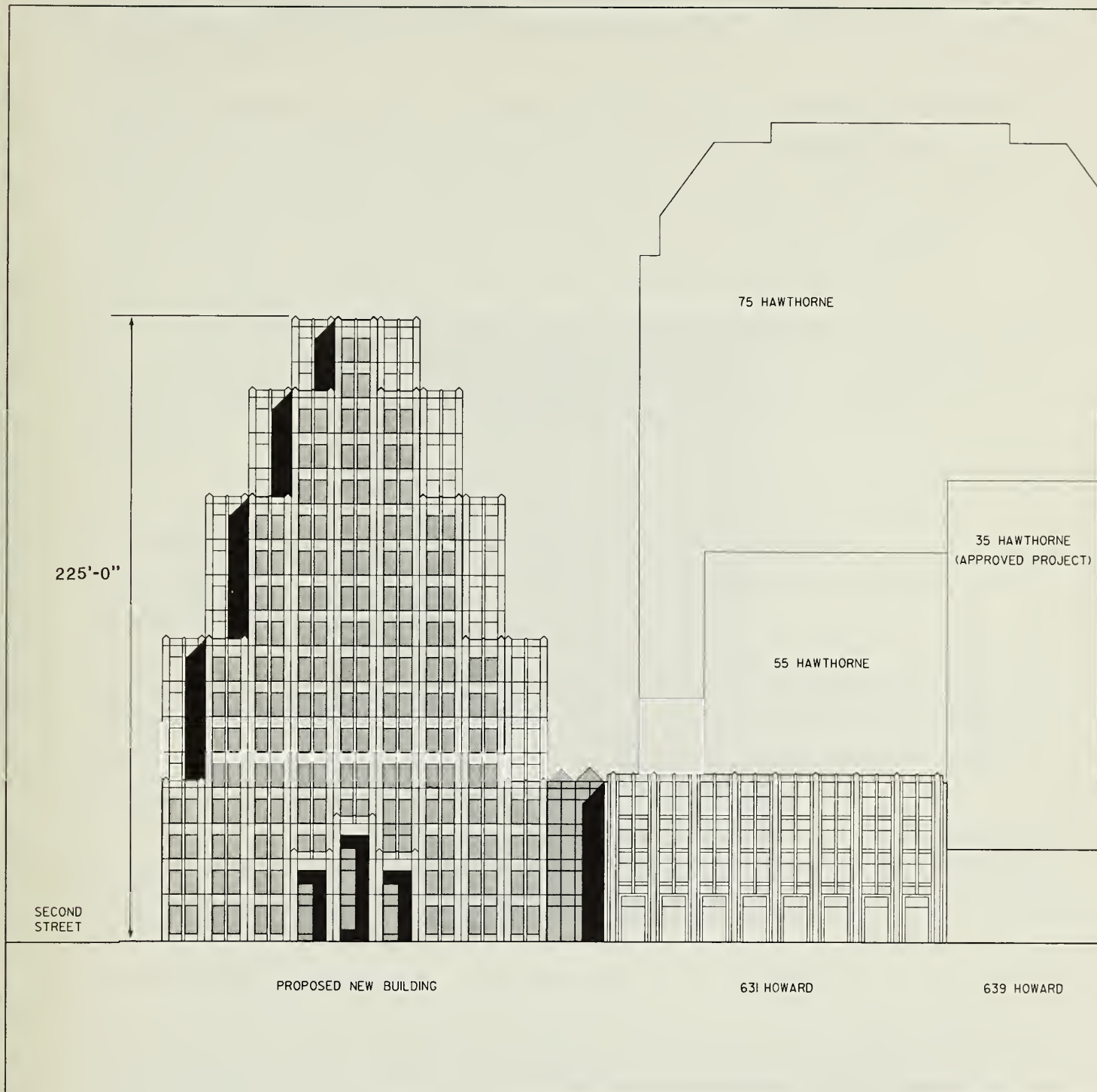


FLOORS 8-11



FLOORS 12-14





222 SECOND STREET

FIGURE 4
HOWARD ST. ELEVATION

SOURCE: Gensler and Associates

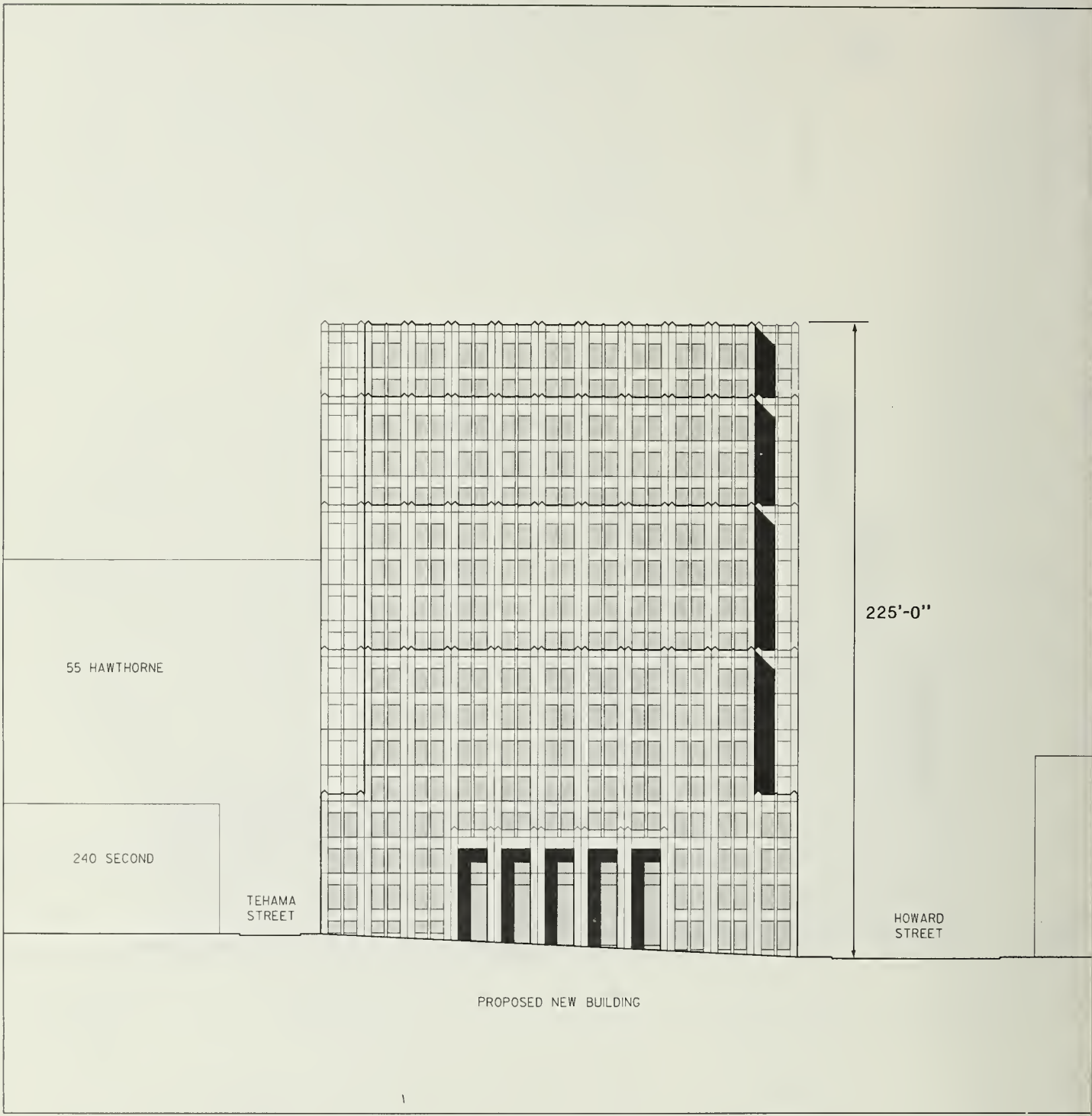


FIGURE 5
SECOND ST. ELEVATION

SOURCE: Gensler and Associates

an average floor size of about 15,435 sq. ft. The upper tower would begin at the 12th floor. The average floor size in the upper tower would be about 9,825 sq. ft.

The project would incorporate art as required by the Downtown Plan, provide required open space on-site as described earlier (4,930 sq. ft.); and meet the child care requirement in a manner to be determined. The project would be built to all property lines up to a height of about 103-ft. It would set back on the east and west at the eighth, 12th and 15th levels to form a stepped pyramid-like shape. The project would also be set back at the fourth level at all building corners, at a height corresponding to the top of the adjacent 631 Howard St. building. The project would include a 20 ft.-wide, four-story glass greenhouse separating it from the four-story 631 Howard St. building. Inside the building, the ceiling of the ground floor would step up from a two-story ceiling over the majority of the ground floor to the four-story ceiling of the greenhouse.

D. PROJECT SCHEDULE, COST AND APPROVAL REQUIREMENTS

PROJECT SCHEDULE AND COST

The project sponsor expects environmental review, project review and detailed design to be completed in mid-1989. If the project were approved and building permits issued, demolition and construction would take about 16 to 20 months with interior finishing thereafter. Initial occupancy is anticipated about 22 months from the start of demolition.

Estimated construction cost of the project would be about \$25,260,000 (1987 dollars), including demolition, excavation, building shell and interior improvements.

APPROVAL REQUIREMENTS

Following a public hearing before the City Planning Commission on the Draft EIR, responses to written and oral comments will be prepared. The EIR will be revised as appropriate and presented to the City Planning Commission for certification as to accuracy, objectivity and completeness. No permits may be issued before the Final EIR is certified.

The Office Growth Limitation Ordinance (Ordinance No. 414-85 approved September 10, 1985 by the Board of Supervisors, signed by the Mayor September 17, 1985, and effective October 17, 1985) limited growth in the form of major office developments (over 50,000 sq. ft.) in San Francisco to a total of 2.85 million sq. ft. over a period of three years (an average of 950,000 sq. ft. per year). This includes development citywide and encompasses development by the Redevelopment Agency, the Port of San Francisco and State and Federal agencies. In accord with the ordinance, the project would be subject to review and approval under City Planning Code Section 321, Office Development: Limits.

On November 14, 1986, the voters of San Francisco passed Proposition M, the Accountable Planning Initiative. It amends Section 320(g)(1) of the City Planning Code to lower the threshold for office projects subject to the annual limit from 50,000 gsf to 25,000 gsf of additional office space. Since the proposed project would add office space in excess of 25,000 gsf, it is now subject to the provisions of Sections 320 - 325 as amended by Proposition M. Proposition M also adds Section 321.1 to the City Planning Code, and changes the limitation amount from 2.85 million sq. ft. of office space over three years to 950,000 gsf in each one-year period. Section 321.1 requires the adjustment of the 950,000 square foot annual limit by limiting new office space approvals to 475,000 sq. ft. annually until the total amount of space approved since November 29, 1984, is reduced to zero in annual increments of 475,000 sq. ft. Up to 892,000 gsf may be approved during the approval period ending October 1989, including about 92,000 sq. ft. remaining from the 1986-1987 approval period, and about 400,000 sq. ft. available from each of the 1987-1988 and 1988-1989 approval periods.

Proposition M also establishes eight Priority Policies. These policies are: preservation and enhancement of neighborhood-serving retail uses; protection of neighborhood character; preservation and enhancement of affordable housing; discouragement of commuter automobiles; protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership; earthquake preparedness; landmark and historic building preservation; and protection of open space. Prior to issuing a permit for any project which requires an Initial Study under CEQA or adopting any zoning ordinance or development agreement, the City is required to find that the proposed project or legislation is consistent with the Priority Policies. The City Planning Commission, in its decision regarding the proposed project approval or disapproval would make a determination of the project's conformance with the Priority Policies.

Under Section 309 of the City Planning Code the sponsor would request exception from (1) requirements of Section 148, to allow exceedances of the 11 mile per hour comfort criterion for pedestrian areas and (2) requirements of Section 272(a), to allow Upper Tower length and diagonal dimensions about five feet and about ten feet, respectively, more than the maximum. Under Section 309 the City Planning Commission would also evaluate artwork (Section 149) and open space (Section 138). The project sponsor would request Project Authorization from the City Planning Commission pursuant to Sections 320-324 of the City Planning Code, whereby the project would be evaluated and compared to other proposed projects.

The City Planning Commission would hold a public hearing to consider the project application under Sections 309 and 322, including requests for exceptions under Section 309(e), and would adopt a motion approving, approving with conditions, or disapproving the project.^{/1/} If the project were to be approved by the City Planning Commission, the project sponsor must obtain demolition, building, and related permits from the Central Permit Bureau of the Department of Public Works. An application for a Site Permit for the project has not been filed to date.

NOTE - Project Description

^{/1/} The Downtown Plan (Section 309(h)) requires a public hearing before the City Planning Commission for all projects exceeding 50,000 sq. ft. of net new area.

III. ENVIRONMENTAL SETTING

A. LAND USE AND ZONING

LAND USE

The project site is on the southwest corner of Howard and Second Sts. Tehama St. abuts the site on the south. The site is two blocks south of Market St. and two blocks north of the James Lick Freeway (I-80). New Montgomery St. terminates at Howard St. one half block northwest of the project site. The Yerba Buena Redevelopment Area occupies a portion of the project block west of the site and continues on blocks north, west and south of the project block. The Transbay Transit Terminal is about one block northeast of the project site.

The site contains two vacant, two-story buildings and a paved surface lot which accommodates 108 parking spaces under a valet park system. A glass and metal shelter (for the parking attendant) is located on the lot.

Office, retail and service uses occupy older buildings in the vicinity, while newer buildings in the surrounding area contain office uses and some ground floor retail uses. Howard St. on the project block is lined with low scale (one- to eight-story) buildings dating from the early 1900s which house retail, office support, utility, government and office uses. The San Francisco Fire Department has a station on Howard St. in a two-story building adjacent to a parking lot at the northeast corner of Howard and Third Sts. South of the project site on Second St., across Tehama St., is the three-story Marines Firemen's Union building. To the north, along New Montgomery and Second Sts., are older office and warehouse-type buildings housing primarily office, furniture, printing and photography uses.

On the block to the northeast across Second and Howard Sts. from the site are small-scale buildings housing office and retail furniture uses, ground-floor retail uses, light-industrial and wholesaling, and surface parking lots under elevated ramps from the Transbay Terminal. The 26-story 100 First St. development building was completed in 1988 on this block at First and Mission Sts.

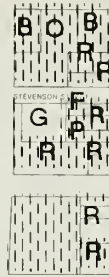
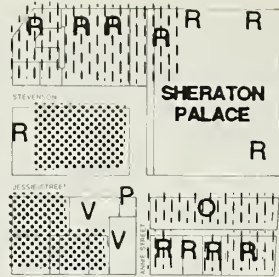
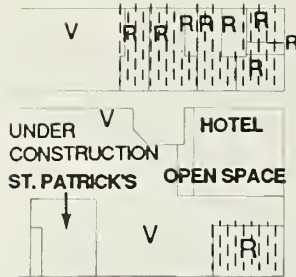
Through conversion and new construction the site area, which has historically supported printing, wholesaling and light-industrial uses, is becoming increasingly office oriented with more office and office support uses, although many of the original use types remain. It differs from the financial district in density, diversity of use and scale of development. The area contains a number of surface parking lots, the largest of which were created by demolition of structures under the Yerba Buena Redevelopment Plan. Land uses in the project site vicinity are shown in Figure 6, p. 27.

Located in the vicinity of the project are the sites of office buildings recently completed, under construction or approved. These include: 71 Stevenson, 100 First St., 90 New Montgomery St., and 455 Market St., all recently completed developments north of Mission. The 18-story, 49 Stevenson building is under construction. The 75 Hawthorne St. and Rincon Square buildings were recently completed south of Howard St. In addition, the 101 Second St. and 524 Howard office developments have been proposed and are under formal review by the Department of City Planning.

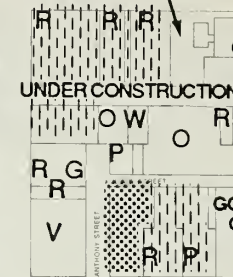
South of Harrison St., uses consist primarily of warehouses, maritime-related services, clothing manufacturers and discount outlets, auto repair shops and some residential development, such as that lining South Park and the apartment building facing the west side of Third St. between Bryant and Brannan Sts. To the south and west is the area covered by the South of Market (SOM) Plan. The SOM Plan is an area plan within the City's Master Plan. Goals of this area plan include protecting the existing economic, social and cultural diversity; preserving existing housing and encouraging development of new affordable housing; protecting and facilitating the expansion of industrial artisan, service and neighborhood-serving retail activities; and preserving existing amenities and improving neighborhood livability.

To the north, along New Montgomery and Second Sts., are older office and warehouse type buildings housing primarily office, furniture and printing and photography uses. New Montgomery St. in particular has buildings housing Pacific Bell offices, including the 27-story Pacific Bell building at 140 New Montgomery St. and the eight-story building just to the south at the northwest corner of New Montgomery and Howard Sts. A 15-story office building, 90 New Montgomery St., is at the northwest corner of New Montgomery and Mission Sts. A parking lot, recently repaved and landscaped, and proposed as the eventual site of a high-rise office building, is located at the northeast corner of Third and Mission Sts.; it is in the Redevelopment Area.

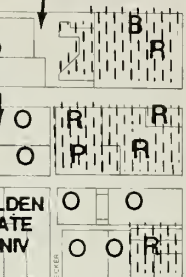
MARKET STREET



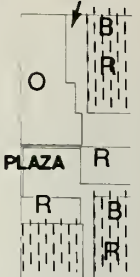
CHEVRON PLAZA



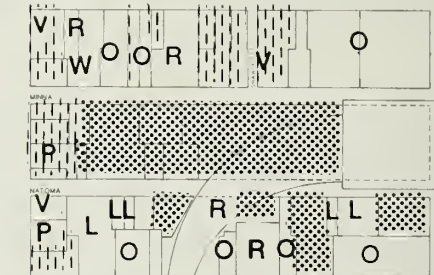
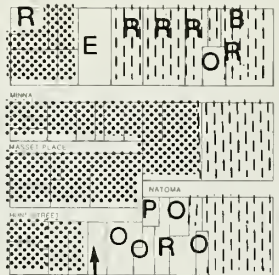
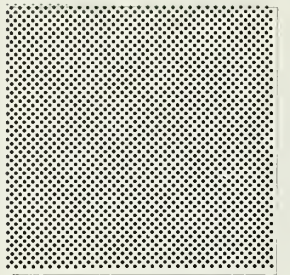
TISHMAN PLAZA



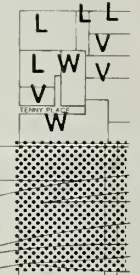
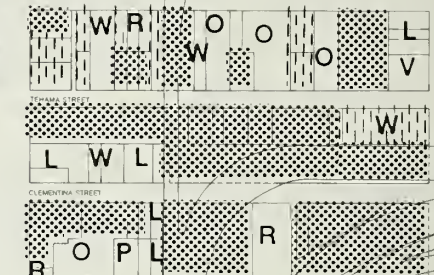
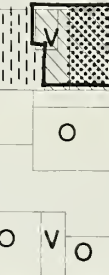
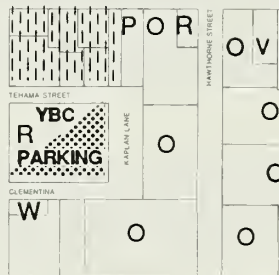
PLAZA



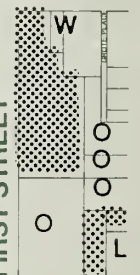
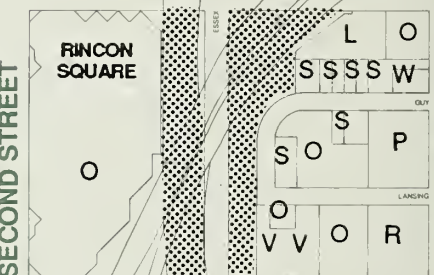
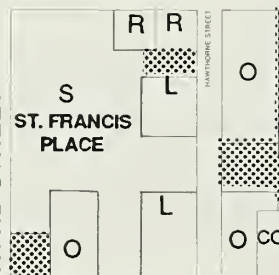
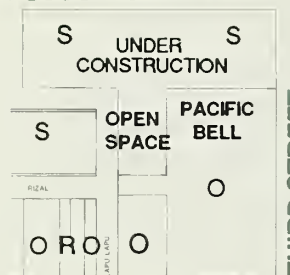
MISSION STREET



HOWARD STREET



FOLSOM STREET



LEGEND

GROUND-FLOOR USE

- OFFICE
- WHOLESALE
- RETAIL/RESTAURANT
- PRINTING/PHOTOGRAPHY
- BANK
- FURNITURE STORE

- LIGHT INDUSTRIAL
- PARKING LOT
- VACANT
- SERVICE GARAGE
- EDUCATION
- RESIDENTIAL APARTMENT

UPPER-FLOOR USE

- OFFICE ABOVE
- WHOLESALE ABOVE
- VACANT ABOVE
- PROJECT SITE



222 SECOND STREET

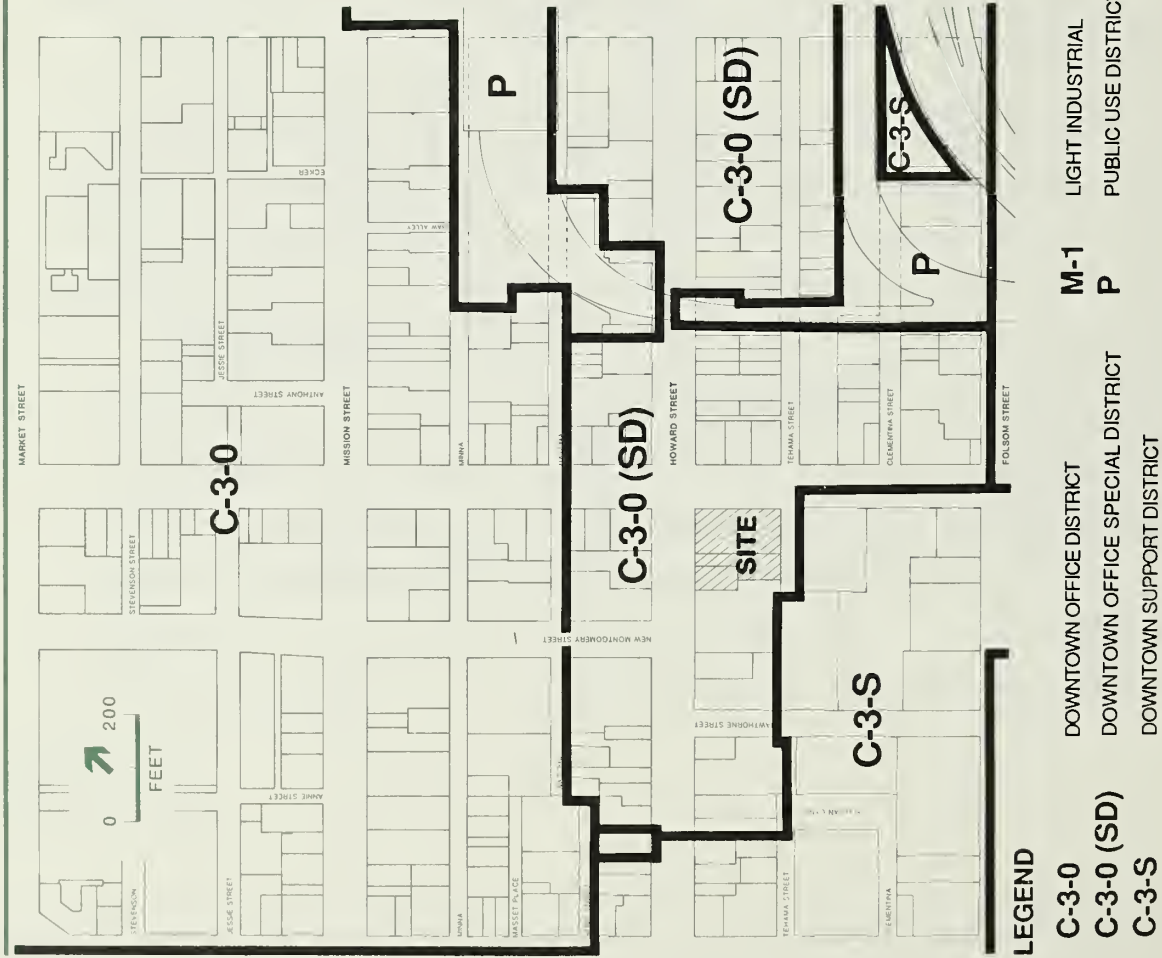
FIGURE
LAND US

ZONING

The project site is in the C-3-O (SD) Downtown Office Special Development District (see Figure 7, p. 29). This special district is identified in the Downtown Plan and City Planning Code as an area for growth redirected from North of Market and for receiver sites for transferred development rights (TDR). The predominant permitted uses in this zoning district are office, with retail and services. Development is permitted with a basic Floor Area Ratio (FAR) of 6:1. In the C-3-O (SD) district development greater than the basic 6:1 FAR, up to a maximum of 18:1 FAR, is allowable through TDR from sites in the same zoning district, the C-3-O district, and C-3-R district that include architecturally significant buildings with unused potential floor area. All unused area applicable to the FAR of the preservation site could be transferred to a development lot subject to setback, sunlight access, separation between towers and any other limitations pursuant to the City Planning Code Section 309, Permit Review in C-3 Districts. Except for the provision that TDRs may be transferred to sites within the C-3-O (SD) district from sites outside the district, and the 6:1 basic FAR, C-3-O (SD) district zoning provisions are identical to those of the C-3-O Downtown Office district.

Zoning in the site vicinity includes P (Public Use) northeast and east of the site (the Transbay Terminal and related areas) and C-3-O to the north. The Downtown Plan and the City Planning Code identify the project area as appropriate for growth redirected from the North of Market, as indicated by the height and bulk designations for these areas.

The site is in the 350-S and 150-S Height and Bulk districts in which the allowable heights are 350 ft. and 150 ft., respectively (see Figure 7, p. 29). In the S bulk district, the maximum length and maximum diagonal dimension of the lower tower are 160 ft. and 190 ft., respectively. The maximum average floor size is 17,000 sq. ft. and the maximum floor size is 20,000 sq. ft. For the upper tower the bulk controls are: a maximum length of 130 ft.; a maximum average diagonal dimension of 160 ft.; a maximum average floor size of 12,000 sq. ft.; and a maximum floor size of 17,000 sq. ft. Allowable exceptions to these bulk maximums are provided in Section 272, subject to approval under Section 309. Ten percent of permitted building height is allowed above the height limit upon further reduction in the volume of the upper portion of the tower. Thus, in the 350-S and 150-S districts, the maximum allowable heights are 385 ft. and 165 ft., respectively.



222 SECOND STREET

PLANNING CODE USE DISTRICTS

SOURCE: San Francisco City Planning Code

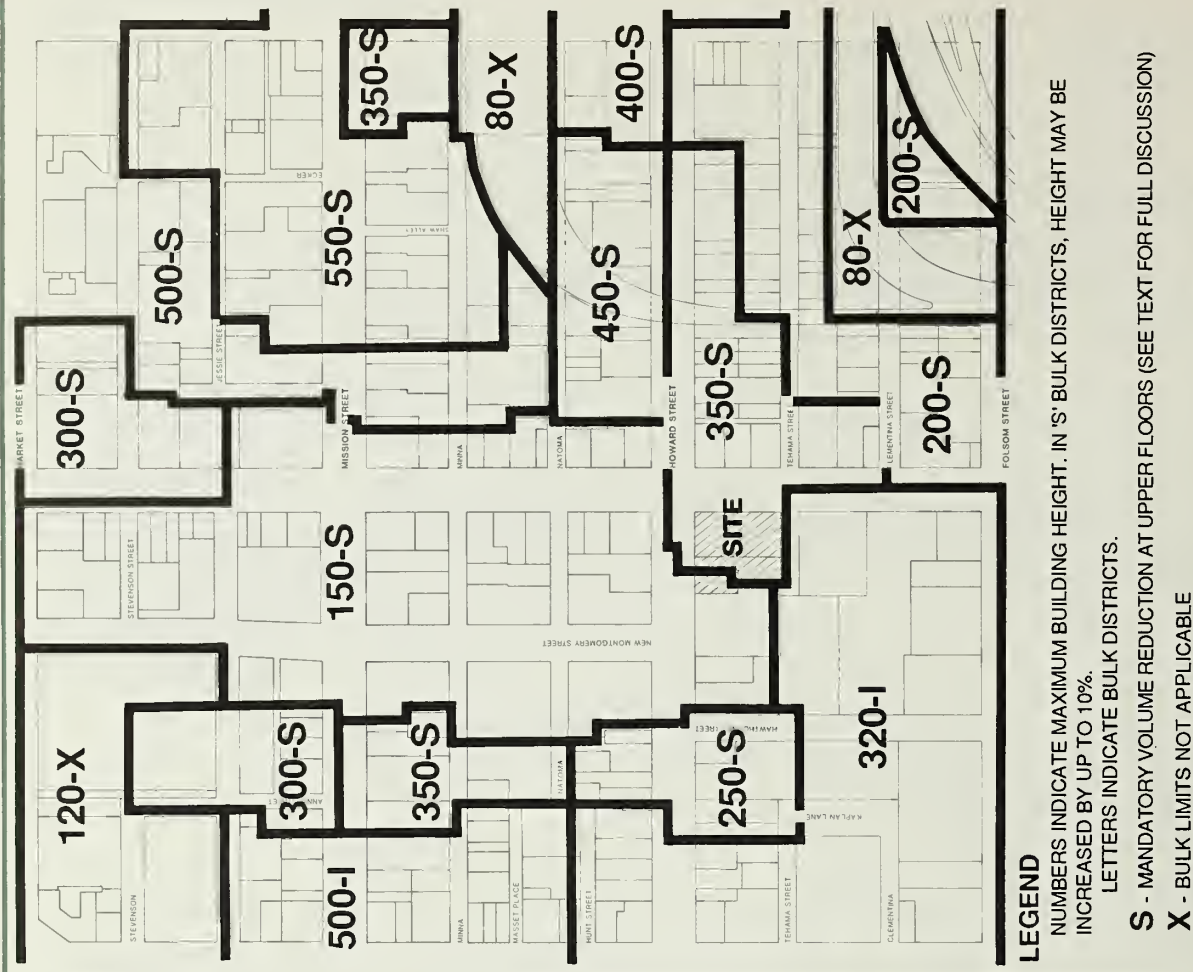


FIGURE 7 PLANNING CODE HEIGHT AND BULK DISTRICTS

The City Planning Code (Section 132.1(c), Separation of Towers) requires a 15-ft. setback from interior property lines, or center of street; exception to the setback requirement could be permitted under Section 132.1 subject to approval under the provisions of Section 309.

Under the Downtown Plan, the east side of Second St. in the site vicinity has protected sunlight access, such that new development on the west side may not penetrate a stipulated "sun access angle." Under Section 146(a) of the City Planning Code, the west side of Second St. from Market St. to 300 ft. south of Folsom St. and including the project site's Second St. frontage, has a maximum allowable street wall height of 132 ft. The sun access angle is defined as an angle of 62° sloping away from the street above a height of 132 ft. at the property line abutting Second St. Exceptions having to do with existing shadow or the creation of insignificant new shadow are provided in Section 146(b) subject to approval under Section 309 of the City Planning Code, Permit Review in C-3 Districts.

Off-street parking is not required for commercial uses in the C-3-O (SD) district, and long-term parking is discouraged by the Master Plan. According to Section 204.5(c) of the City Planning Code, up to seven percent of the gross floor area of a building may be devoted to parking as an accessory use when no parking is required. In C-3 Districts, off-street loading and service vehicle spaces are required as follows: 0.1 spaces per 10,000 sq. ft. of office use (to the closest whole number); no spaces are required for less than 10,000 gross sq. ft. of retail (City Planning Code, Section 152.5, Table 5.5). The project would be subject to the Transit Impact Development Fee (TIDF, Ordinance 224-81), which requires a project sponsor to contribute a one-time fee for maintaining and augmenting transportation service in an amount proportional to the demand created by the project.

Open space is required for commercial uses in the C-3-0 district in a 1:50 ratio of open space to uses with open space requirements, as per Section 138(a) and (b) of the Planning Code; and contribution of \$2.00 for each net new gross sq. ft. of office use to the Downtown Park Fund (Section 139(d)). The open space provided must meet minimum standards as defined by Section 138(d) of the Code.

B. URBAN DESIGN

DESIGN

The two buildings on the site (613-617 Howard St. and 611 Howard St.) are two-story, industrial-style buildings typical of older South of Market development, and somewhat smaller in scale than adjacent development (see Figures 8 to 10, pp. 32 to 34). The project site vicinity contains a variety of building types, with much older development, particularly on the west, having been replaced by more modern structures. Much of the early development remains and a large number of older buildings have been renovated. The area contains several surface parking lots which occupy portions of the block and which were formerly the sites of buildings. Some of these parking lots are on land proposed for development by the Redevelopment Agency, which is responsible for much of the redevelopment in the area.

The 75 Hawthorne St. building, at 19 stories, represents the tallest building on the project block and is adjacent to the 55 Hawthorne St. building which was previously the tallest structure at 10 (above-ground) stories. Older buildings to the east and south tend to be industrial in design, and generally three to four stories in height. New Montgomery and Second Sts. contain office development which is generally taller and has greater architectural detailing than the industrial-style development. The older buildings are built to lot lines. More recent development (in the last 10 years) in the area generally consists of tall, bulky office buildings with less architectural detail than older development. Some of this more recent development is set back from lot lines, including the Pacific Bell buildings at the northwest corner of Hawthorne and Folsom Sts. and the southwest corner of Second and Folsom Sts., and also the building recently completed at 75 Hawthorne St.

In the 1976 Department of City Planning Architectural Inventory, approximately 10% of the City's entire stock of buildings were awarded a rating for architectural merit ranging from a low of "0" to a high of "5." The total number of buildings which were rated from "3" to "5" represent less than two percent of the City's entire building stock. The 613-617 Howard St. building on the site is rated "0" in the DCP 1976 Architectural survey; the 611 Howard St. building was not rated in the DCP 1976 survey.



222 SECOND STREET

FIGURE 8
VIEW OF BUILDINGS ON SITE
FROM NORTH OF HOWARD ST.

SOURCE: Environmental Science Associates, Inc.



222 SECOND STREET

FIGURE
VIEW OF SITE FROM HOWARD
AND NEW MONTGOMERY

SOURCE: Environmental Science Associates, Inc.



222 SECOND STREET

PROJECT SITE

FIGURE 10
VIEW OF SITE SOUTHWEST
ALONG HOWARD ST.

SOURCE: Environmental Science Associates, Inc.

The Foundation for San Francisco's Architectural Heritage (Heritage) conducted a survey which assigned ratings to buildings in the C-3 District. The survey rated buildings from a high of "A" (Highest Importance) to "D" (Minor or No Importance). The criteria used in the evaluation were based on guidelines of the National Trust for Historic Preservation, the National Register of Historic Places, and the State Historic Resources Inventory. Heritage rated the 611 Howard St. building (the Holabird building) as C, and rated the 613-617 Howard St. building (the Sullivan building) as D.

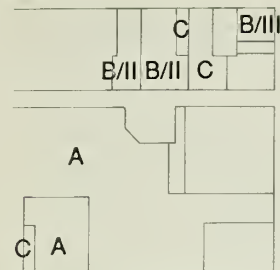
The Downtown Plan categorizes historically and architecturally significant buildings in the C-3 districts into either Category I or II (significant buildings) or Category III or IV (contributory buildings) and establishes four conservation districts. It is the intent of the Downtown Plan that those buildings categorized I, II, III or IV be protected (see Appendix C, p. A- 40 for a description of the three architectural surveys). Neither building is designated as significant or contributory in the Downtown Plan.

Within the vicinity of the project site, about 24 buildings were rated in the 1976 Department of City Planning Architectural Inventory. Most of the buildings north of Folsom St. to Market St. within the vicinity of the project site, are rated in the 1979 Heritage survey. About 40 buildings in the vicinity of the project site were categorized as historically and architecturally significant in the Downtown Plan.

Adjacent to the site on the west of the site is the George Kelham-designed William Volker building at 631 Howard St., a five-story brick office building dating from 1929. The Downtown Plan designates this building as Category II, Heritage rates it "C" and the DCP rating is "3." This building is within the Downtown Plan New Montgomery-Second Conservation District, which includes this building on the project block and extends north to the south side of Market St., west to buildings fronting the west side of New Montgomery St., and east to buildings fronting the east side of Second St. The Conservation District is unique in that it is close to the financial district and is one of the few architecturally significant areas intact in the South of Market.

There are three City landmarks in the project vicinity: 619 Market St. (around which One Montgomery Place was built), the Palace Hotel and its Garden Court at 633 Market St., and the Sharon Building at 39 New Montgomery St. Figure 11, p. 36, identifies buildings in the

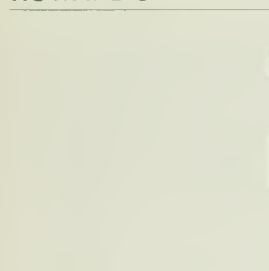
MARKET STREET



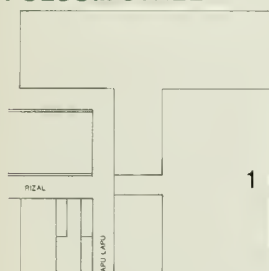
MISSION STREET



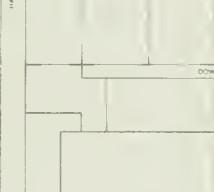
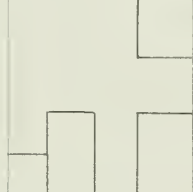
HOWARD STREET



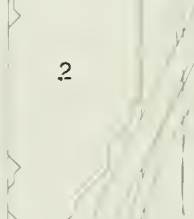
FOLSOM STREET



THIRD STREET



SECOND STREET



KEY TO RATINGS

B/2/III HERITAGE/DCP/DOWNTOWN PLAN

A-C HERITAGE RATING (1979 AND 1982, D C-3 DISTRICTS ONLY)

0-5 DCP RATING (1976, CITYWIDE)

I-IV DOWNTOWN PLAN (1984, C-3 DISTRICTS ONLY)

* CITY LANDMARK

--- DOWNTOWN PLAN NEW MONTGOMERY - SECOND STREET CONSERVATION DISTRICT



SITE

222 SECOND STREET

FIGURE 11
ARCHITECTURAL RESOURCES
IN PROJECT VICINITY

SOURCE: SAN FRANCISCO DEPARTMENT OF CITY PLANNING, HERITAGE

project area included in the DCP 1976 Architectural Inventory, the Heritage Survey, and the Downtown Plan, and identifies designated City Landmarks.

Open space in the area consists of the landscaped portions of the Moscone Convention Center roof, about two blocks southwest of the site. The proposed Yerba Buena Gardens redevelopment project, including office, retail and open space is under construction one block west of the project site.

VIEWS

Views from the site immediately to the north are of adjacent five- to eight-story buildings (with the exception of the 28-story Pacific Bell building). To the north and east, taller buildings in the financial district and in the South of Market area are visible above lower-scale development in the foreground. To the west, Howard St. presents a relatively open vista due to open areas created by parking lots and the Convention Center. To the south, Second St. rises toward Rincon Hill. The site is visible from the east on Howard St. and from the south on Second St. The site is not generally visible from other locations because of street configurations and the low scale of development on the site.

C. SHADOW AND WIND

SHADOW

The two existing two-story buildings on the site cast shadows on streets and sidewalks in the project vicinity and on the parking lot on the site itself. The site buildings do not shade any existing, planned or proposed open space. Open space in the project site vicinity includes the Transbay Terminal staging area, at the southeast corner of First and Mission Sts., the Golden Gate University entry and seating area on the north side of Mission west of First St., Tishman Plaza, Mechanics Plaza, Standard Oil Plaza, Hotel Meridien ground-level open space, and Moscone Center Park. The plazas are located along Market St. to the north and northeast of the project site. The Hotel Meridien, open space and proposed Yerba Buena Gardens redevelopment project are located about 1.5 blocks northwest and about one block west, respectively, of the site. The nearest open space protected by Proposition K in the vicinity of the proposed project

is Union Square to the northwest and St. Mary's Square to the north, each of which is several city blocks from the project site. Other open space in the vicinity of the site includes a publicly accessible open space plaza on the roof of the two-story garage west of the new 100 First St. office tower, recently completed approximately 800 ft. to the northeast of the proposed project site. The Transbay Terminal and its staging area are located immediately east of the 100 First St. building.

Existing and project shadow patterns for various times of the day and year are discussed in detail in Chapter IV, Impacts, pp. 59 to 74. Sunlight access requirements under the City Planning Code for Second St. in the site vicinity are discussed on p. 75.

WIND

U.S. Weather Bureau and Bay Area Air Quality Management District data show that westerly (i.e., from the west) to northwesterly winds are the most frequent and strongest winds during all seasons in San Francisco.^{1/} Of the 16 primary wind directions measured at the Weather Bureau station (at a height of 132 ft.), four directions comprise the greatest frequency of occurrence as well as the majority of strong wind occurrences; these are northwest, west-northwest, west and west-southwest. Calm conditions occur about two percent of the time.

Average wind speeds are highest during summer and lowest during winter months. However, strongest peak winds occur in winter, when speeds of 47 miles per hour (mph) have been recorded.^{2/} The highest average wind speeds are in the mid-afternoon, and the lowest are in the early morning.

Pedestrian Comfort and Wind Criteria

Wind conditions partly determine pedestrian comfort on sidewalks and in other public areas. In downtown areas, high-rise buildings can redirect wind flows around buildings and divert winds downward to street level; each can result in increased wind speed and turbulence at street level.

In order to provide a comfortable wind environment for people in the Downtown, Section 148 of the Planning Code establishes an equivalent (includes the effects of turbulence) windspeed (as defined in the Code) of 7 and 11 mph as comfort criteria and 26 mph as a wind hazard criterion. Section 148 sets comfort levels of 7 mph equivalent wind speed for public seating areas and

11 mph equivalent wind speed for areas of substantial pedestrian use. New buildings and additions to buildings may not cause ground level winds that would exceed these levels more than ten percent of the time year round between 7:00 a.m. and 6:00 p.m./3/ If existing wind conditions exceed the comfort level, new buildings and additions shall be designed to reduce ambient wind speeds to meet the requirements.

Exceptions may be requested under Section 309 of the City Planning Code. No building or addition would be permitted that would cause wind speeds to exceed the hazard level, defined as an hourly average of 26 mph, for more than a single hour of any year.

Existing and project generated wind conditions are discussed in Chapter IV, Environmental Impact, pp. 77 to 78 and Appendix B, p. A-35.

NOTES - Shadow and Wind

/1/ The U.S. Weather bureau data used in this analysis were originally gathered at the weather station atop the old Federal building at 50 United Nations Plaza during the years 1945-50. Data were taken hourly, annually for 16 wind directions. The data base, comprising of 32,795 hourly observations, is of sufficient length to provide a reliable estimate of future climatic conditions in San Francisco.

/2/ E. Jan Null, Climate of San Francisco, NOAA Technical Memorandum, NWS WR-126, February 1978.

/3/ Section 148 of the City Planning Code specifies the hours of 7:00 a.m. to 6:00 p.m. The available weather data that include that interval covers the hours of 6:00 a.m. to 8:00 p.m. Thus, observation from two additional evening hours and one additional morning hour are included in these data. Because, in general, winds are stronger in the afternoon and evening than in the morning, this approximation is conservative - it is likely to overestimate the existing and projected wind speeds.

D. HISTORIC AND CULTURAL RESOURCES

There is no recorded occupation or use of the project site during the Prehistoric, Spanish/Mexican, or Early American periods. There is considered to be little or no possibility of encountering cultural resources on the site from the Prehistoric, Spanish/Mexican, or Early American periods./1/ The earliest recorded history at this site dates from the Gold Rush period. The site is located within what was called Happy Valley (the area bounded by Market, Howard, First and Second Sts.). The area housed a collection of gold-digger tents prior to 1849. In the

fall of 1849, buildings were erected housing iron foundaries, shops, salons, merchandise and hotels. The 1852 U.S. Coast Survey map shows the south of Market area dotted with buildings, with the greatest concentration located around First and Mission Sts., which is about one block from the project site.

The first permanent structures on the project site appeared on the 1857 U.S. Coast Survey Map, although there is no information concerning their owners or uses. An 1856 photograph shows the structures as two, two-story residential structures. Between the late 1850s and 1869, Second St. between Market and Harrison was perhaps the most elegant shopping thoroughfare in the South of Market area, catering to the residents of Rincon Hill. After the 1869 Second St. cut the area began its economic decline. During the Late Nineteenth Century period (1887-1906) the project site was occupied by one-, two-, and three-story wood frame structures, with storefronts on the groundfloor and residential units above. By the 1906 earthquake, the site was occupied by a surface parking lot. Most recently, in 1923 and 1924, the site was developed with the existing 611 and 613-617 Howard St. buildings and it is these buildings, now vacant, that would be removed to make way for the proposed project.

The site condition at the time of the Gold Rush period consisted of the slope of a sandhill with an elevation of 50 to 80 ft. above sea level. Since that time grading occurred (between 1852 and 1854) leaving the site 14 ft. above the City base or about 20.7 ft. above the ordinary high tide mark. Between 30 ft. and 50 ft. on average of the original sandhill was cut away.

Recent finds in South of Market include two prehistoric shell mound discoveries: At 49 Stevenson St. about 225 ft. north of the project site, a prehistoric shell mound (CA-SFR112) was discovered in May, 1986 which dates to the late Horizon period (after 500 A.D.). The find was characterized by a wide range of obsidian projectile points, charm stones, net weights and large amounts of shellfish and fish remains as well as some mammal bones. No human remains were encountered. The bulk of the shell mound remains preserved under the 53 Stevenson St. building.

At Fifth and Market Sts. about 525 ft. west of the project site, a prehistoric shell mound (CA-SFR113) was discovered which dates to the Middle Horizon period (between 1,000 B.C. to 500 A.D.). The find was characterized by a wide range of obsidian projectile points, net weights and large amounts of shellfish and fish remains as well as some mammal bones. No human remains were encountered. The entire shell mound was destroyed as a result of the excavation of the project.

The 49 Stevenson Street shellmound was covered by a large sandhill at the beginning of the Gold Rush era; a massive amount of this sandhill was cut away in the late 1850's or early 1860's. Yet, in spite of these nineteenth century topographic alterations, an extensive, largely intact and culturally rich prehistoric shellmound was encountered at a depth of 19 feet below present street grade. In addition, two other prehistoric shellmounds have been discovered within the South of Market area since the Stevenson Street shellmound was first encountered. These discoveries suggest that deeply buried prehistoric sites may exist at other places within the South of Market region, even in locations that were subjected to extensive historic period grading./2/

NOTE - Cultural Resources

/1/ Allen G. Pastron, Ph.D., Archeo-Tec, consulting archaeologists, conducted archival research for the project site and the surrounding area. The ensuing report, entitled Cultural Resource Evaluation of 222 Second St., April 21, 1986, is on file at the Department of City, Planning, Office of Environmental Review, 450 McAllister St.

/2/ Allen G. Pastron, Ph.D., President, Archeo-Tec, letter to Brian Boxer, EIP Associates, October 17, 1988. This letter is on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister, San Francisco.

E. TRANSPORTATION

The existing on-site 108-space lot provides valet parking for long- and short-term users.

The site is served by local streets and by portions of the regional freeway system (see Figure 1, p. 16). Access to the freeway and the East Bay via the Bay Bridge is provided by ramps at First and Harrison Sts. (about 2,100 ft. southeast of the site) and at Mission and Beale Sts. (about 2,500 ft. northeast of the site). Access to the freeway and the Peninsula and the San Francisco International Airport is provided by ramps at Mission and Beale Sts. and Harrison and Fourth Sts. (about one-half mile southwest of the site). Traffic headed to the North Bay generally travels along Van Ness Ave. and Franklin St. or the Embarcadero to Bay St. Access from the freeway system to the project site is provided by off-ramps at Fremont and Howard Sts. (about 2,200 ft. southeast of the site) and at Mission and Main Sts. (about 2,200 ft. northeast of the site).

In the vicinity of the project site, Mission, Howard, Second, Third and Folsom Sts. are designated as Transit Preferential Streets, on which priority is given to transit vehicles over

autos during commute and business hours on weekdays./1/ Howard, Folsom and Third Sts. are designated as Primary Vehicular Sts., which the Master Plan defines as "major routes for automobile and truck movements into and out of the Downtown area." Second and Mission Sts. are designated "Pedestrian Oriented Streets" in the Master Plan; the Master Plan states that on these streets certain design measures should be taken to improve mobility and render existing pedestrian space more pleasant and efficient. Second St. is two-way and carries four lanes of traffic. Howard St. is one-way westbound and has three lanes with the addition of a fourth lane from 4 p.m. to 6 p.m. due to the restriction of parking in the north curb lane during that period. Tehama St. is a dead-end alley and forms the southern boundary of the site. There is unmetered one-hour on-street parking along the north side of Tehama St. Delivery or other vehicles double parked on Tehama St. could block the secondary entrance/exit to the 55 Hawthorne St. building parking garage, and could block the only entrance/exit to the parking lot behind the Marine Firemen's Union building. There is metered one-hour on-street parking on both Howard and Second Sts. adjacent to the site.

The site is served by San Francisco Municipal Railway (Muni) electric trolley and motor coach lines, providing radial service to and from the downtown area. Muni bus lines operate on Mission and First Sts. near the project site. The closest Muni bus stops to the project site are on Second St. in front of the site, serving the 17X-Parkmerced Express and the 15-Third, and on Howard St. at New Montgomery St. serving the 12-Folsom. Muni Metro light-rail vehicle lines are accessible via the Montgomery St. Station located two blocks north of the project site on Market St. Transit routes in the project vicinity are shown on Figure 24, p. 91.

Regional transit service to the site is provided to and from the East Bay by the Bay Area Rapid Transit District (BART), at the Montgomery St. Station on Market St. (about two blocks northwest of the site), and by AC Transit motor coaches at the Transbay Terminal on Mission St. at First St., about one-block northeast of the project site.

Service to the Peninsula is provided by Caltrain from the train terminal at Fourth and Townsend Sts.; by the San Mateo County Transit District (Samtrans), with bus routes and stops along Mission St. (the closest to the site is in front of the Transbay Terminal); and by BART, which provides transfers to Samtrans routes at the Daly City BART Station.

The Golden Gate Bridge, Highway and Transportation District (Golden Gate Transit) provides a.m. and p.m. peak-period bus service from/to Marin and Sonoma Counties. The closest

boarding stops are along Howard St., at the Transbay Terminal, and along Sansome St. Discharge stops are located along Folsom St., at the Transbay Terminal, and along Battery St. Golden Gate Transit provides ferry service to terminals in Larkspur and Sausalito from the Ferry building, about 3,000 ft. northeast of the site. It operates shuttle service from the Ferry building to the financial district and the South of Market area. Golden Gate Transit also operates a vanpool and club (subscription) bus program to areas not served by fixed routes.

The RIDES carpool program, operating as a nonprofit publicly funded corporation, provides consulting and matching services to help establish Bay Area carpools and vanpools.

Mission, Market, Howard, Folsom, Third and New Montgomery Sts. are designated as Preferred Commute Bike Routes in the Transportation Element of the City's Master Plan. Of these streets, only Howard and Folsom Sts. are currently striped with bike lanes.

The effective widths of the sidewalk on Howard St. and the sidewalk on Second St., adjacent to the site, are about 11 ft. and 10 ft., respectively. The Howard St. sidewalk in front of the project site currently operates in unimpeded conditions during both the noon and p.m. peak hours. The Second St. sidewalk operates in open conditions during the noon hour and unimpeded conditions during the p.m. peak hour.

The crosswalk across Howard St., at Second St. closest to the site, currently operates in unimpeded conditions during both the noon and p.m. peak hour. The crosswalk crossing Second St., at Howard St., operates in open conditions during the noon hour and unimpeded conditions during the p.m. peak hour. Pedestrian volumes on Tehama St. are unimpeded during both the noon and p.m. peak hour./2/

A survey of the existing off-street public parking in the site vicinity conducted for the EIR on the 101 Second St. project (located about one block north of the 222 Second St. site), indicates that a total of 6,334 parking stalls exist within two blocks of the 101 Second St. site which are 87% occupied on a typical weekday. The daily parking rate for these lots varies from \$4.50 to \$12.50./3/

The site is located outside the Downtown Core automobile control area designated in the Downtown Transportation Plan of the Transportation Element of the San Francisco Master

Plan./1/ A Plan goal is to reduce the number of private commuter vehicles and excess automobile traffic in the downtown core; the Plan discourages the addition of new long-term parking spaces in and around downtown. The site is located in an area designated as a Parking Belt in the Downtown Transportation Plan of the Transportation Element of the San Francisco Master Plan. Parking belts are areas that the Plan identifies as appropriate for short-term parking facilities to replace spaces removed from the core area.

NOTES - Transportation

/1/ San Francisco Department of City Planning, January 1983, Transportation, An Element of the Master Plan.

/2/ Based on counts and observations at the project site conducted by Environmental Science Associates on Monday, September 29, 1986 from 12 noon to 1 p.m. and 4:30 p.m. to 5:30 p.m.

/3/ San Francisco Department of City Planning, Final Environmental Impact Report, 101 Second Street Office Project (85.414 E), Certified March 19, 1987, pp. 44.

F. AIR QUALITY

The Bay Area Air Quality Management District (BAAQMD) operates a regional monitoring network which measures the ambient concentrations of six air pollutants: ozone (O₃), carbon monoxide (CO), particulates (both fine particulate matter [PM₁₀] and total suspended particulates [TSP]), lead (Pb), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂). On the basis of the monitoring data, the Bay Area, including San Francisco, currently is designated a non-attainment area with respect to the federal ozone and CO standards. A three-year summary of the data collected at the BAAQMD monitoring station nearest the project site (about two miles south at 10 Arkansas St.) is shown in Appendix E, p. A-54, together with the corresponding federal and/or state ambient air quality standards. In 1987, there was one violation of the federal and state eight-hour average CO standard, four violations to the state standard for fine particulate matter (PM₁₀) and three violations of the previous state average 24-hour TSP standard. In 1986, there were two violations of the federal and state eight-hour average CO standard and five violations of the previous state average 24-hour TSP standard. In 1985, there were three violations of the federal and state eight-hour average CO standard and five violations of the previous state 24-hour average TSP standard.

BAAQMD has conducted several CO "hotspot" monitoring programs in the Bay Area, including two in San Francisco. One CO monitoring program was conducted during the winter of 1979-80 at the intersection of Washington and Battery Sts. about 0.5 miles north of the site./2/ The high eight-hour average concentration was 10.1 ppm, which violated the 9-ppm state and federal standards by 1.1 ppm. The high one-hour average concentration of 15 ppm did not violate the 20-ppm state standard or the 35-ppm federal standard. Another CO monitoring program was conducted during the winter of 1980-81 at the intersection of Geary and Taylor Sts., about 0.7 miles northwest of the site, and 100 Harrison St. at Spear, about 0.5 miles east of the site./3/ At Geary and Taylor the observed high eight-hour average concentration was 11.5 ppm, which violated the standards by 2.5 ppm, and the high one-hour concentration was 15 ppm, which did not violate the standards. At Harrison St. the observed high eight-hour and one-hour average concentrations were 7.8 ppm and 13 ppm, respectively, which did not violate the standards. In December 1985, the City monitored CO and counted traffic at the Sixth and Brannan intersection. Data from the "hot spot" monitoring programs indicate that locations in San Francisco near streets with high traffic volumes and congested flows may experience violations of the eight-hour CO standard under adverse meteorological conditions.

Comparison of these data with those from other BAAQMD monitoring stations indicates that San Francisco's air quality is among the least degraded of all the developed portions of the Bay Area. Three of the four prevailing winds, west, northwest, and west-northwest, blowing off the Pacific Ocean, reduce the potential for San Francisco to receive pollutants from elsewhere in the region.

San Francisco's air quality problems, primarily CO and particulates, are due largely to pollutant emissions from within the City. CO is a non-reactive pollutant and its major source is motor vehicles. CO concentrations are generally highest during periods of peak traffic congestion or adverse meteorology. Particulate levels are relatively low near the coast, increase with distance inland, and peak in dry, sheltered valleys. The primary sources of particulates in San Francisco are demolition and construction activities, and motor vehicle travel on city streets and highways.

San Francisco contributes to regional air quality problems, primarily ozone, a regional problem, in other parts of the Bay Area. Ozone is not emitted directly from sources, but is produced in the atmosphere over time and distance through a complex series of photochemical reactions

involving hydrocarbon (HC) and nitrogen oxide (NO_x) emissions, which are carried downwind as the photochemical reaction occurs. Ozone standards are violated most often in the Santa Clara, Livermore, and Diablo Valleys, because local topography and meteorological conditions favor the buildup of ozone and its precursors there.

In 1982, emissions from motor vehicles were the source of 86% of the CO, 46% of the HC, 44% of the TSP, and 56% of the NO_x emitted in San Francisco, while power plant fuel combustion was the largest single source of sulfur oxides (SO_x), about 33% of the total./4/ These percentages are expected to apply reasonably well to current conditions.

In response to the Bay Area's ozone and CO non-attainment designations, the Association of Bay Area Governments (ABAG), BAAQMD, and the Metropolitan Transportation Commission (MTC) prepared and adopted the 1982 Bay Area Air Quality Plan, which establishes pollution control strategies to attain the federal ozone and CO standards by 1987 as required by federal law./5/ These strategies were developed on the basis of detailed subregional emission inventories and projections, and mathematical models of pollutant behavior, and consist of stationary and mobile source emission controls and transportation improvements. The BAAQMD, MTC, and California Bureau of Automotive Repair (a state agency) have primary responsibility for implementation of these strategies.

NOTES - Air Quality

/1/ State standards for particulate matter changed in 1983 and federal standards changed in 1987 to concentrate on fine particulate matter which has been demonstrated to have health implications when inhaled (PM-10). The previous state and federal particulate standards were 100 micrograms per cubic meter (ug/m³) and 260 ug/m³ of particulates, respectively. The present state and federal PM-10 standards are 50 ug/m³ and 150 ug/m³, respectively, of fine particulate matter. Although both the previous and present particulate standards are measured in ug/m³, under the PM-10 standards only those particulates 10 microns or less in size are measured. The BAAQMD (Thomas Perardi) has stated that TSP includes about 50% to 60% of particulates of 10 microns or less; thus, the TSP standards are generally equivalent to the PM-10 standards. BAAQMD is presently monitoring PM-10 at seven Bay Area monitoring stations, including the 16th and Arkansas station in San Francisco.

/2/ Association of Bay Area Governments, AQMP Tech Memo 33, "Summary of 1979/80 Hotspot Monitoring Program," Berkeley, California, June 1980.

/3/ Association of Bay Area Governments, AQMP Tech Memo 40, "Results of the 1980/81 Hotspot Monitoring Program for Carbon Monoxide," Berkeley, California, January 1982.

/4/ Bay Area Air Quality Management District (BAAQMD), "Base Year 1982 Emissions Inventory, Summary Report," San Francisco, California, November 1, 1983.

/5/ Association of Bay Area Governments (ABAG), BAAQMD, and MTC, 1982 Bay Area Air Quality Plan, Berkeley, California, December 1982.

IV. ENVIRONMENTAL IMPACTS

An application for environmental evaluation for a development proposal on the site was filed on February 7, 1986. On December 26, 1986, on the basis of an Initial Study, the Department of City Planning, Office of Environmental Review, determined that a tiered Environmental Impact Report (EIR) was required. Issues determined as a result of the Initial Study to require no further environmental analysis included: Reflected Light and Glare, Population (except project-specific employment), Operational Noise, Construction Air Quality, Utilities/Public Services, Biology, Geology/Topography, Water, Energy/Natural Resources, and Hazards. Therefore, except as noted below, this document does not discuss these topics (see Appendix A, pp. A-1 to A-34, for the Initial Study).

A. LAND USE AND ZONING

CUMULATIVE CONTEXT

The Downtown Plan EIR included forecasts of amounts of space of various types that would be built in the C-3 District between 1984 and 2000. Information from the Downtown Plan EIR included forecasts of amounts of space likely to be found in the C-3 District in the future and of the numbers of employees likely to be working in the C-3 District in the future. The forecasts of total space in the year 2000 were about 125,243,000 square feet in all uses including about 78,900,000 in office uses. Total employment in the C-3 District was forecast to be about 372,000 persons in 2000.

The Mission Bay EIR and the South of Market EIR include revised forecasts of space by use for the C-3 District and for the South of Market area; the Mission Bay EIR also includes forecasts for the rest of the Downtown & Vicinity.

These new forecasts account for the decline rather than growth in employment in the C-3 District and elsewhere in the Greater Downtown during the early 1980's, provide new forecasts of space expected over the timeframe, and account for specific buildings approved or under

construction since the Downtown Plan EIR forecasts were prepared. The forecasts go beyond known and proposed building space, to forecast employment and space growth for a particular timeframe past that during which the known and proposed space would be built and absorbed. The forecasting method and background is described in the Downtown Plan EIR (pp. IV.B.1-8, IV.B.12-43, IV.B.54a-61, and Appendices G and H). The method was not changed in forecasts prepared for the South of Market and Mission Bay EIR analyses, but several changes were made in the analysis and results.

Baseline data providing existing employment and space in the analysis area were updated to 1985, resulting in the changes in forecasts for future C-3 District employment and space. Specific forecasts were also prepared for areas outside the C-3 District, first for the South of Market area and then for Mission Bay and the rest of the Downtown & Vicinity. Finally, for Mission Bay purposes only, employment and space growth and residence patterns were forecast on a regional basis for the estimated Mission Bay buildout year of 2020. The forecasts of future office space and employment, and an explanation of the methods used, can be found in the South of Market EIR, pp. 66-77 and Appendix B, and in the Mission Bay EIR Vol. I, p. II.31, Vol. II, pp. VI.B.13-23, VI.B.38-79, VI.B.106-112, and VI.B.119-123, and Vol. III, Appendix B (see especially Mission Bay EIR Appendix B, pp. XIV.B.24-30 for a comparison to the Downtown Plan EIR forecasts).

In summary, the forecasts show about 94,459,000 to 94,884,000 gross sq. ft. of occupied office space in the Downtown & Vicinity in the year 2000. The range is based on different amounts of office space in Mission Bay, depending on the development program approved and built. This is an increase of about 25,000,000-26,000,000 gross sq. ft. over the amount existing in 1985. The forecast accounts for demolition and new construction and for conversion of existing buildings from non-office to office uses in the future. It also accounts for absorption of several million sq. ft. of office space vacant in 1985 and another several million approved or under construction as of 1985. A five percent vacancy rate is assumed in year 2000. A relatively small amount of the total space would be proposed and approved between 1986 and 1997 (to be built and absorbed by 2000). (See Mission Bay EIR, Vol. III, pp. XIV.B.37-41.) About 75% of the office space would be in the C-3 District. The proposed project would contribute about one-quarter of one percent of the total future amount of office space in the Downtown & Vicinity.

LAND USE

The project would require demolition of two vacant, two-story buildings, and removal of a paved surface parking lot for construction of a 16-story office and retail building. The site previously contained 17,000 gsf of light manufacturing uses and 5,000 gsf of office. The proposed project would increase the density of development on the site, adding about 231,750 gsf of office space, 9,460 gsf of retail space, and 4,930 gsf of open space. Retail and open space would be new uses on the site. The 14,025 sq.-ft. parking lot adjacent to the existing buildings provides 108 valet spaces; the proposed project would replace these parking spaces with 70 independently accessible parking spaces located in the second basement level, or about 23,925 gsf of parking (including ramps).

In conjunction with other approved and proposed projects, the project would continue the trend of high-rise office development in the South of Market area. Traditionally, the South of Market area has been characterized by businesses such as retail, printing and other services. Some older buildings in the area, which typically house these uses, have been replaced by high-rise office buildings.

Parts of the South of Market area, particularly northeast of the project block, have been developed with high-rises such as Fremont Center, Pacific Gateway, 100 Spear St., 160 Spear St. and 301 Howard St. The project would be similar to development on blocks to the north and west, and to the nearby 100 First St. project recently completed one block northeast of the site. It would be similar to other proposed high-rises in the vicinity such as 101 Second St., and 524 Howard St. The project would differ from development east, south and immediately north of the project site. The project would represent the continuing expansion of the downtown financial district into the area surrounding the Transbay Terminal, into an area identified for such development in the Downtown Plan.

The project would be consistent with the description of the C-3-0 (SD) Downtown Office district described in Article 2, Section 210.3 of the City Planning Code. The Section describes the district, "playing a leading national role in finance, corporate headquarters and service industries, and serving as an employment center for the region"

ZONING

The City Planning Code contains controls regarding scale, intensity, and location of growth in downtown San Francisco; architectural preservation; open space; sunlight access; wind criteria; and transportation. The relationship of the project to selected sections of the City Planning Code is discussed here and summarized in Table 2, pp. 52 to 55.

The basic Floor Area Ratio (FAR) for the C-3-0 (SD) district is 6:1. Floor Area Ratio is the ratio of gross floor area to site size. A number of building uses can be excluded from the gross floor area calculation: ground-floor building service and internal circulation; required replacement short-term parking; cultural, religious and social service areas; and ground-floor retail, restaurant, and personal service space up to 75% of ground-floor open space and interior areas, and parking equal to or less than seven percent of the gross floor area (Section 102.8(b)1-16). Development greater than the basic 6:1 FAR is allowable up to a maximum of 18:1 FAR, through transfer of development rights (TDR) from sites within the same zoning district, from the C-3-0 district and from the C-3-R district, that include buildings rated I and II under the Downtown Plan with unused potential floor area. The combined FAR over the preservation (transferor) and receiver sites may not, however, exceed 6:1 in this Use District. The building on the development site receiving TDR must comply with all limitations imposed by the City Planning Code, including review under Section 309: Permit Review in C-3 Districts.

The Downtown Plan includes four categories of architecturally significant buildings: Category I (significant buildings, retain essentially intact); Category II (significant buildings, additions to height at rear may be feasible); Category III (contributory buildings outside a conservation district and of individual importance); and Category IV (contributory buildings in a conservation district, encourage retention, allow replacement as a contributory building). TDRs may not be transferred to sites containing significant or contributory buildings, if development would result in demolition or substantial alteration of these buildings. Neither of the buildings on the site are listed in any category. About 93,150 gsf of TDR is proposed to be transferred to the project from as yet unidentified sites. The overall FAR for the development and contributory lots would be 6:1, if both are in this Use District.

TABLE 2: RELATIONSHIP OF THE PROJECT TO THE CITY PLANNING CODE

	<u>Planning Code Requirements/Limits</u>	<u>Project</u>
<u>Height</u> (Sections 260 and 263.9)/a/	150/350 ft. (385 ft. with allowable exceptions)	225 ft.
<u>Bulk</u> (Section 270)		
Base Height	103 ft.	103 ft.
Lower Tower		
Length	160 ft.	135 ft.
Diagonal	190 ft.	175 ft.
Maximum Average Floor	17,000 sq. ft.	15,435 sq. ft.
Maximum Floor	20,000 sq. ft.	16,425 sq. ft.
Upper Tower		
Length	130 ft.	135 ft.
Diagonal	160 ft.	170 ft.
Maximum Average Floor	12,000 sq. ft.	9,825 sq. ft.
Maximum Floor	17,000 sq. ft.	11,525 sq. ft.
Volume Reduction (above 160 ft.)	24%	36%
FAR (Section 124)	6:1 Basic, 18:1 Maximum with TDR	9.9:1
TDR (Section 128)	Allowable up to 12:1 FAR, equivalent to a maximum of 287,100 gsf on this site, in addition to basic FAR.	93,150 sq. ft. of TDR would be used on the development site (equivalent to about 3.9:1 FAR in addition to basic FAR)/b/.
Architectural Resources (Article 11)	Designates buildings in Categories I to IV, and into six Conservation Districts, based on archi- tectural merit, with re- lated provisions regarding preservation.	No impacts. Buildings on-site are not desig- nated in any Category or within a designated Conservation District.
Open Space (Section 138)	One sq. ft. per 50 sq. ft. of office and retail space or 4,930 gsf for the project.	4,930 sq. ft. of in- door open space on- site.

TABLE 2: RELATIONSHIP OF THE PROJECT TO THE CITY PLANNING CODE
(Continued)

	<u>Planning Code Requirements/Limits</u>	<u>Project</u>
Downtown Park Fund (Section 139(d))	Contribution of \$2.00 for each net gross sq. ft. of office to Downtown Park Fund.	One-time payment equal to \$463,400 for the project.
Shadow (Sections 147 and 295)	Minimize substantial shadow impacts on public plazas and other publicly accessible spaces, without unduly restricting development potential; consider duration, area, and importance of sunlight to utility of open space. No new shadow on Recreation and Park Dept. property from one hour after sunrise to one hour before sunset (per Proposition K).	Project would not add new shadow to any public open space. The project would not cast any new shadow on property under the jurisdiction of Proposition K. The project would add new shadow to Second St. during morning and afternoon hours. The project would meet the City Planning Code sun access requirement.
Wind (Section 148)	Ground-level winds may not exceed (more than 10% of the time year round between 7:00 a.m. and 6:00 p.m.), 11 mph in areas of substantial pedestrian use and seven mph in public seating areas.	Project would cause wind speeds to violate the 11 mph comfort criterion with winds from 12-13 mph at three locations which were evaluated. The project would require exceptions to City Planning Code Section 148.
Art (Section 149)	Publicly accessible art equal to one percent of construction cost.	Project would comply.
Off-Street Loading	0.1 space per 10,000 sq. ft. of office space or two spaces.	Two full-size truck loading spaces are proposed.

TABLE 2: RELATIONSHIP OF THE PROJECT TO THE CITY PLANNING CODE
(Continued)

	<u>Planning Code Requirements/Limits</u>	<u>Project</u>
Parking (Section 155.g)	Rate structure to encourage short-term use; long-term use discouraged.	70 short-term independently accessible spaces. Rate structure would favor short-term users.
Transportation Broker (Section 163)	Required.	Would be provided by building management.
OAHP (Section 313)	OAHP requires 89 units for proposed 231,700 net new sq.ft. of office.	Project sponsor would comply with OAHP.
Employment (Section 164)	Local employment program and employment brokerage services required for buildings exceeding 100,000 sq. ft. to encourage employment and work training for San Francisco residents.	Building management to provide brokerage services.
Child care (Section 314)	On-site child care services or in-lieu fee required of \$1.00 per sq. ft. of net additional office space.	Project would comply.

SECTION 309: EXCEPTIONS REQUIRED FOR THE PROJECT

Bulk Limits (Section 270(c)2)

Requirement: Upper tower: Maximum length of 130 ft., maximum average diagonal measure of 160 ft.

Exception: The project would have a maximum length of about 135 ft. and a maximum average diagonal of about 170 ft. in the upper tower. Exception to bulk requirements may be allowed in accordance with the provisions of Section 309 under Section 272(a). Such an exception may be granted if it permits, "achievement of a distinctly better design."

Section 148(a). Reduction of Ground Level Wind Currents in C-3 Districts.

Requirement: Ground-level winds may not exceed (more than ten percent of the time year round between 7:00 a.m. and 6:00 p.m.) 11 mph in areas of substantial pedestrian use and seven mph in public seating areas.

TABLE 2: RELATIONSHIP OF THE PROJECT TO THE CITY PLANNING CODE
(Continued)

Exception: The project would require allowable exceptions to City Planning Code Section 148 for increased winds above 11 mph to 12 mph, 13 mph or 14 mph, at three locations; at the north and south corners of the Howard/Second intersection and at the end of Tehama St. The exception is requested under Section 148(a).

/a/ Section numbers in parentheses refer to sections of the City Planning Code.

/b/ The site from which development rights would be transferred has not been identified. The FAR on the combined preservation and development sites would be 6:1, if both are in this Use District. The Downtown Plan excludes from FAR: mechanical and building service space; ground-floor internal circulation areas; and ground-floor and mezzanine-level (at the discretion of the City) retail, personal service and restaurant space up to 75% of the area of the ground-floor interior, and exterior open areas.

SOURCE: Environmental Science Associates, Inc.

The City Planning Code does not require off-street parking for commercial projects in the C-3-O (SD) District. Under Section 102.8(b)6, floor area for accessory parking and loading space, as defined in Section 204.5, would not be counted in the FAR calculation of the building.

Accessory parking space may include up to seven percent of the total gross floor area of the building; parking area in excess of the seven percent would require Conditional Use authorization and would apply to the FAR. The project would provide about 16,570 gsf of parking space (excluding ramps), equal to the seven percent of the gross floor area allowable for the project as an accessory use.

The site is within 350-S (Lots 1 and 4) and 150-S (Lot 53) height and bulk districts: the height limits are 350 and 150 ft., respectively. Structures up to 385 ft. and 165 ft. are allowable under the provisions outlined for optional upper tower extensions. At 225 ft. (including a 12.5-ft.-tall mechanical penthouse), the project would be about 160 ft. lower than the maximum allowable height. In the 150-S District, the project would rise to a maximum height of about 125 ft. The S bulk designation controls building dimensions, floor sizes and bulk through Downtown Plan Bulk Control Zone Charts B and C. Essentially, these bulk controls require setbacks, smaller floor sizes and slimmer building profiles with increased building height. The controls

require a base zone not exceeding 1.25 times the width of the widest abutting street (in this case, both Howard and Second Sts. are about 82.5 ft. wide), delineated by a setback, cornice or other architectural feature. The base of the project would be about 103 ft. tall (as measured from the center of the project frontage on Second St.), the maximum height allowed by the controls ($1.25 \times 82.5 = 103$ ft.).

The project's lower tower would extend from the building base, at about 103 ft. to a height of about 160 ft.; the upper tower would extend above this to a height of about 213 ft. with a 12 ft.-tall mechanical penthouse on top. With an average floor area of 15,435 sq. ft., and a maximum floor area of 16,425 sq. ft., a diagonal dimension of about 175 ft. and a maximum length of 135 ft., the project would be within the lower tower bulk limits (a maximum average floor area of 17,000 sq. ft., a maximum floor area of 20,000 sq. ft., maximum diagonal dimension of 190 ft., and a maximum length of 160 ft.) specified in the City Planning Code. For a 225-ft.-tall building with a lower-tower floor size of about 15,435 sq. ft., the "S" bulk controls require a volume reduction in the upper tower (above about 160 ft.) of about 24%; the project would have a volume reduction of about 36%.

The maximum length and maximum diagonal dimensions in the upper tower of the project would be about 135 ft. and 170 ft. respectively, both would exceed the maximums of 130 ft. and 160 ft. respectively, permitted by the City Planning Code. With an average upper tower floor area of about 9,825 sq. ft. and a maximum upper floor area of about 11,525 sq. ft. the project would be within the maximum areas specified by the City Planning Code (maximum average floor size of 12,000 sq. ft. and maximum floor area of 17,000 sq. ft.). Exception to bulk requirements is allowable in accordance with the provisions of Section 309 under Section 272(a) if at least one of the criteria under Section 272(a) 1-5 is met.

The City Planning Code requires usable indoor or outdoor open space, accessible to the public, as part of new downtown development. The ratio of usable open space to new building space in the C-3-0 (SD) is one sq. ft. of open space for every 50 sq. ft. of area with an open space requirement (Section 138), or about 4,930 sq. ft. for the project. The project would include 4,930 sq. ft. of open space on the ground floor in a greenhouse and park.

The City Planning Code requires that shadows on publicly accessible open space be minimized (Section 147). New buildings are to be shaped, consistent with the dictates of good design and without unduly restricting the development potential of the site, to reduce substantial shadow impacts. Among the factors for the determination of shadow impact are: amount of area shadowed; duration of the shadow; and the importance of sunlight to the utility of the type of open space being shadowed. (See pp. 59 to 74 for a discussion of shadow impacts of the project.) The project would be within the sun access angle specified in the City Planning Code.

The City Planning Code requires that ground-level winds may not exceed, more than ten percent of the time year round between 7:00 a.m. and 6:00 p.m., 11 mph in areas of substantial pedestrian use and seven mph in public seating areas (Section 148). The project would cause violations of the 11 mph pedestrian comfort criteria at three locations: two at the Howard/Second intersection and one on Tehama St. The seven mph seating criteria would not be applicable to the project as there are no seating areas in the vicinity. The project would require an exception which may be allowed under Section 148(a) in accordance with the provisions of Section 309, for causing violations of the pedestrian wind comfort criteria.

The City Planning Code requires the equivalent of two full-size off-street truck loading spaces for the project. The project sponsor would comply with this requirement.

THE MASTER PLAN

The Commerce and Industry Element of the City's Master Plan, and the Downtown Plan, a part of the Master Plan, contain objectives which apply to the proposed project.

Objective 2 of the Commerce and Industry Element "maintain and enhance a sound and diverse economic base and fiscal structure for the City," and Objective 2 of the Downtown Plan Element "maintain and improve San Francisco's position as prime location for financial and administrative, corporate and professional activity" would apply to the project, because the project would provide space for office activities. Objective 6 of the Commerce and Industrial Element, to support San Francisco as a "prime location for financial, administrative, corporate, and professional activity," would apply because the project would continue growth of downtown office activity.

B. URBAN DESIGN

The project would demolish two, small-scale buildings and construct a high-rise structure similar in scale to existing and proposed high-rises in the South of Market area and contrasting in scale with existing older South of Market development. The project would be taller than most older development in the project vicinity.

The project would be similar in scale though less in height to the 75 Hawthorne St. development (20 stories), recently completed on the project block west of the site. The project would be about seven stories taller than the 55 Hawthorne St. building, also on the project block west of the site; it would be seven stories taller than the approved 35 Hawthorne St. building which would be ten stories tall. The project would be about six stories taller than the Rincon Square office development recently completed at Folsom and Second Sts. The project would be between about 12 and 14 stories taller than the prevailing height of older development in the vicinity.

The project would not be set back from Tehama St. or Howard St. The east and west facades of the project would be set back by 15 ft. at each of the eighth, 12th and 15th levels to form a stepped shape. The project would also be set back above the fourth level, at the building corners, at a height corresponding to the top of the William Volker Building (631 Howard St.), and other older buildings in the project vicinity. It is these set backs at the building corners which would define the architectural base.

Setbacks above the base and at upper levels of the project are intended to diminish the apparent bulk of the building. Setbacks and horizontal belt courses in the project would be at heights which would relate to adjacent and nearby development including older buildings on Second and Howard Sts. The facades of the building would be faceted and sculpted in order to complement nearby older development. The double-height ground floor with open space and retail space would provide pedestrian interest.

The stepped roof design would be most visible on the City's southern skyline viewed from the east and south. The building's stepped top would contrast with the taller, more box-like buildings now forming much of the southern skyline.

Open space on the project site would be along Howard and Second Sts. and in a galleria through the project site. The project would include a four-story, 20-ft.-wide glass atrium separating it from the William Volker Building.

The project tower would be visible from long-range viewpoints as well as neighboring buildings and street-level areas in surrounding blocks (see Figures 12 to 17, pp. 60 to 65).

The project would be visible from Twin Peaks and from Potrero Hill in front of taller development as part of the Downtown office district (see Figures 16 and 17, pp. 64 to 65).

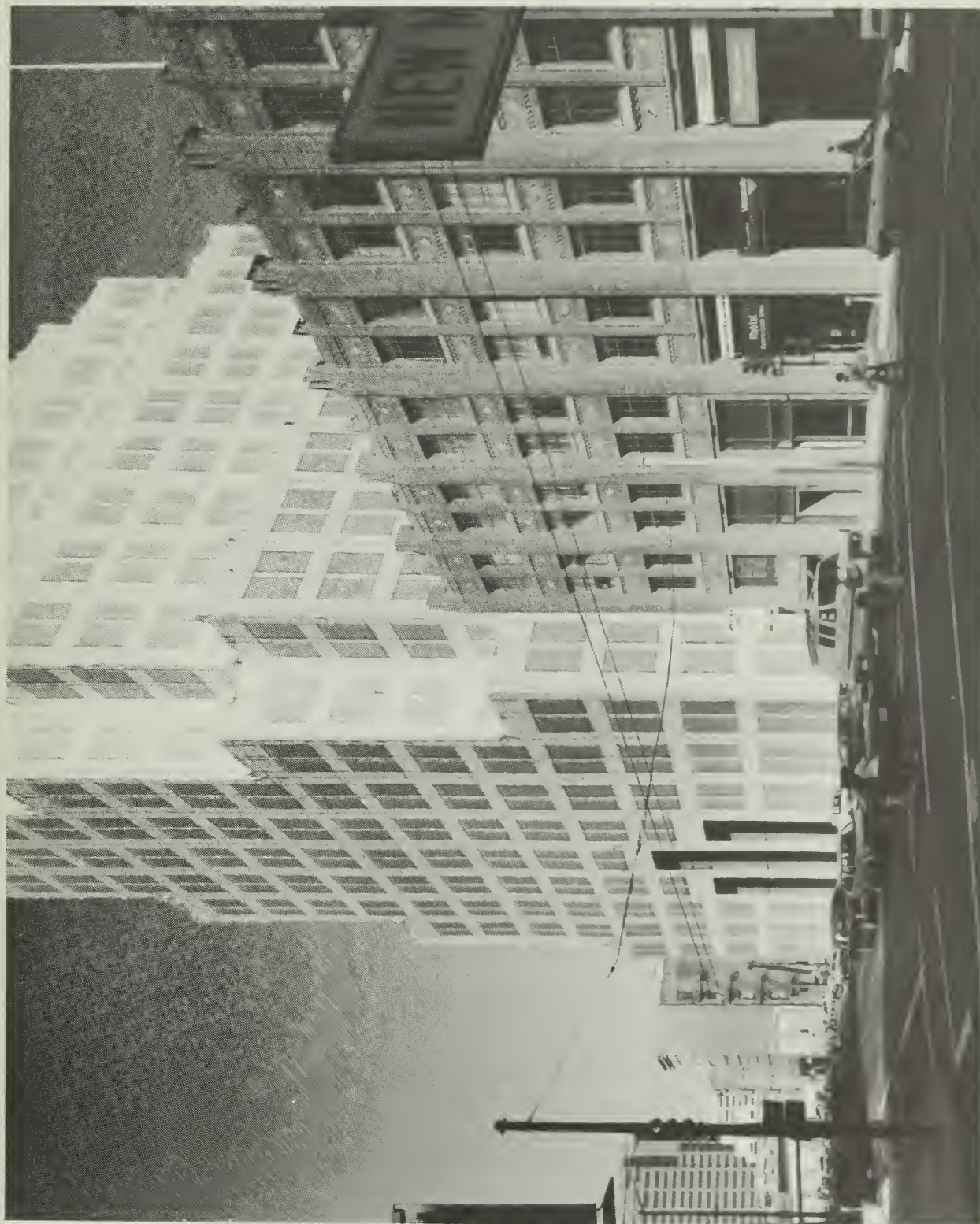
The project would not be visible from Nob Hill due to intervening high-rise structures. From portions of the San Francisco - Oakland Bay Bridge the project would be visible in the cluster of high-rise structures west of the San Francisco waterfront and south of Market St. The project would appear as part of the downtown skyline's southern edge from southern approaches to the City, including the James Lick Skyway and Interstate 280 (I-280).

The Urban Design Element of the San Francisco Master Plan contains objectives which may be used to evaluate the proposed project. Table 3, pp. 66 to 67, "The Relationship Between Applicable Urban Design Objectives of the Master Plan and the Proposed Project," compares the project to these objectives.

C. SHADOW AND WIND

SHADOW

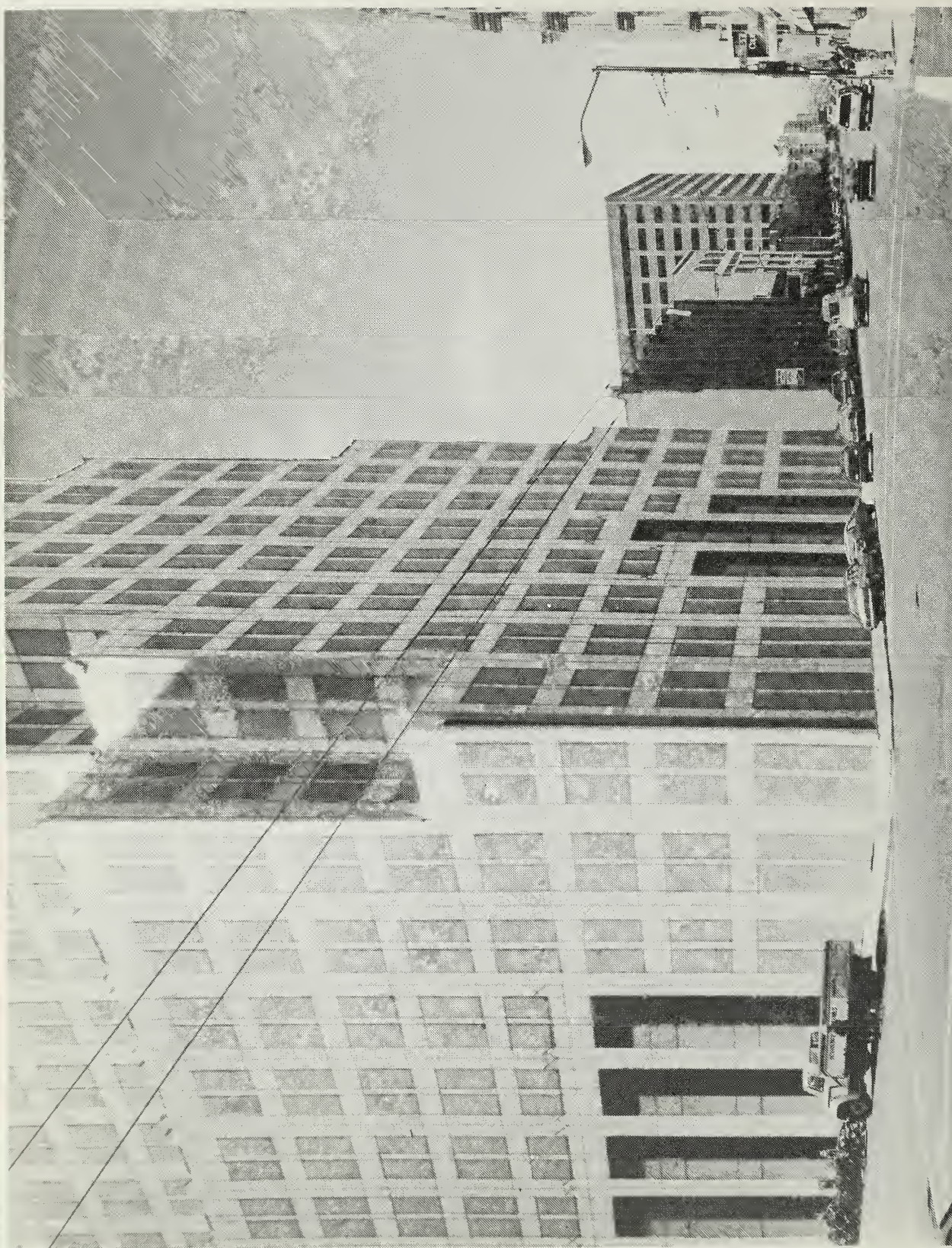
Shadow patterns for existing and approved buildings in the project area (including existing buildings on the site) and the project are shown for 10:00 a.m., noon and 3:00 p.m. for the four seasons: during winter and summer solstices when the sun is at its lowest and highest, and during the spring and fall equinoxes when the sun is at its midpoint (see Figures 18 to 21, pp. 69 to 72). Conditions from July through November mirror the conditions from January through May (using solar time). The analysis includes shadows cast on streets, sidewalks, pedestrian areas, and open space in the area potentially affected by the proposed project. A shadow outline of the project as though cast on the ground, without intervening buildings, is shown to illustrate the scale of the project in relation to the structures that would surround it. The diagrams in Figures 18 to 21 show existing and approved building shadows and net new shadow due to the project.



222 SECOND STREET

FIGURE 12
PHOTOMONTAGE FROM HOWARD
AND NEW MONTGOMERY

SOURCE: Douglas Syme & Associates



222 SECOND STREET

FIGURE 13
PHOTOMONTAGE SOUTHWEST
ALONG HOWARD ST.

SOURCE: Douglas Symes & Associates



222 SECOND STREET

FIGURE 14
PHOTOMONTAGE SOUTH
ALONG SECOND ST.

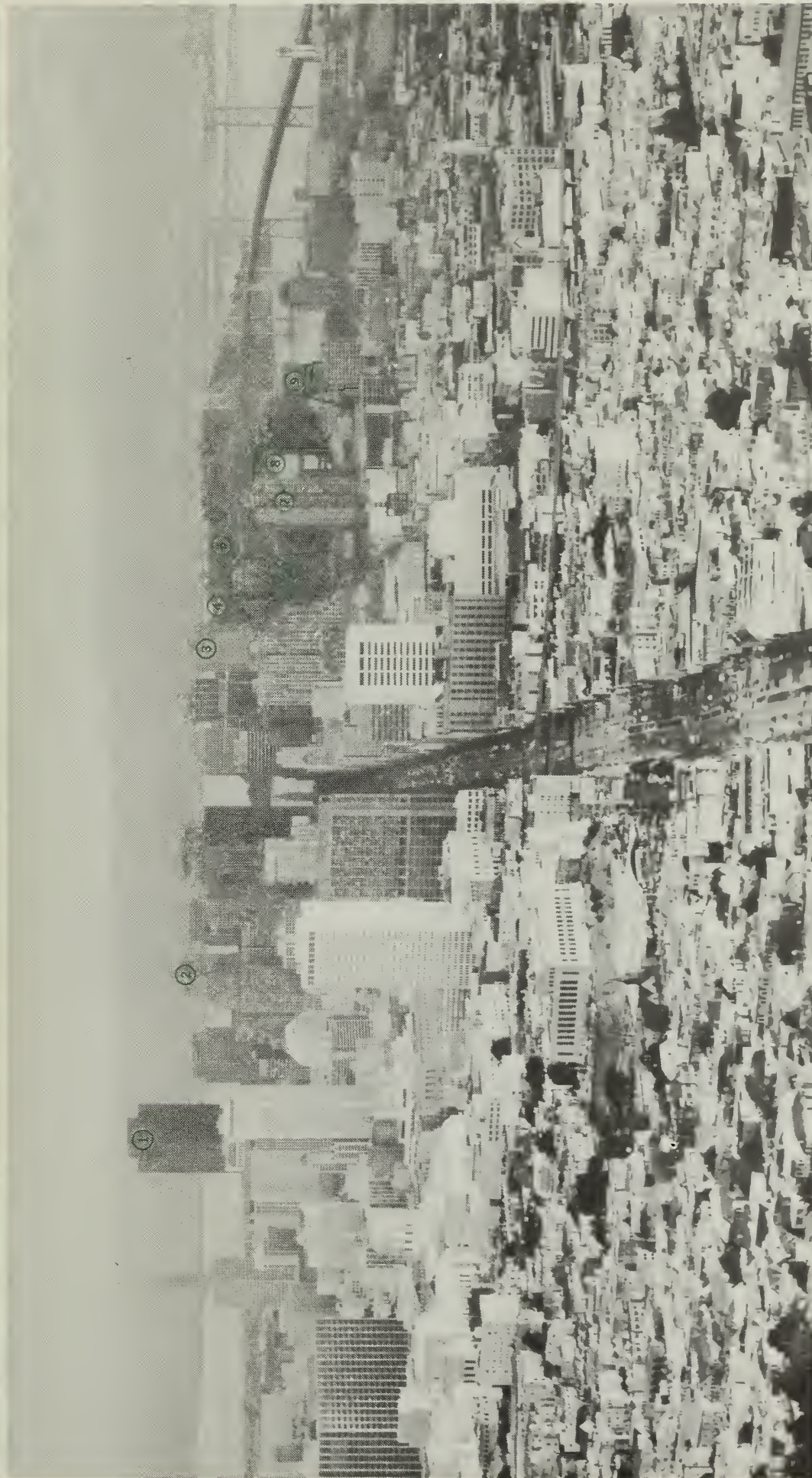
SOURCE: Douglas Symes & Associates



222 SECOND STREET

FIGURE 15
PHOTOMONTAGE NORTH
ALONG SECOND ST

SOURCE: Douglas Symes & Associates



MAJOR STRUCTURES EXISTING, PROPOSED AND UNDER CONSTRUCTION

- | | | |
|-------------------|--------------------------------|-------------------------------|
| 1 Bank of America | 4 Pacific Gateway | 7 Pacific Telephone |
| 2 345 California | 5 100 First Street | 8 524 Howard (proposed) |
| 3 Fremont Center | 6 101 Second Street (proposed) | 9 222 Second Street (PROJECT) |

222 SECOND STREET

FIGURE 16
LONG RANGE VIEW OF PROJECT
FROM TWIN PEAKS

SOURCE: Environmental Science Associates, Inc.



MAJOR STRUCTURES EXISTING, PROPOSED AND UNDER CONSTRUCTION

1 Bank of America	4 101 Second Street (proposed)	7 75 Hawthorne	10 524 Howard (proposed)
2 Transamerica	5 222 Second Street (PROJECT)	8 100 First Street	11 Embarcadero 4
3 525 Market	6 101 California	9 Fremont Center	12 Pacific Gateway

222 SECOND STREET

FIGURE 17
LONG RANGE VIEW OF PROJECT
FROM POTRERO HILL

TABLE 3: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN OBJECTIVES OF THE MASTER PLAN AND THE PROPOSED PROJECT

URBAN DESIGN OBJECTIVES

RELATIONSHIP OF PROJECT TO OBJECTIVES

Objective 1 - "Emphasis of the characteristic pattern which gives to the City and its neighborhoods an image, a sense of purpose and a means of orientation." (p. 4)

This project, in combination with other recently constructed, approved and proposed developments, would visually define the downtown area. The project would be located along California St., designated as a major view corridor. The project would be visible but would not block views of Nob Hill along these corridors. The project would not obstruct any public views of the Bay.

Objective 2 - "Conservation of resources which provide a sense of nature, continuity with the past, and freedom from overcrowding." (p. 20)

The project would demolish two, post-fire, industrial buildings, the Holabird building and the Sullivan building, both rated by Heritage ("C" and "D," respectively). Neither building on the site is a landmark, or is included in significant or contributory status under the Downtown Plan. The Sullivan building is adjacent to, but not within, the New Montgomery - Second St. Conservation District. The Holabird building was rated "O" in the City's 1976 architectural survey. Through the use of TDR, the project would preserve a significant or contributory building elsewhere in the C-3-0 district.

Objective 3 - "Moderation of major new development to complement the City pattern, the resources to be conserved, and the neighborhood environment." (p. 32)

Most existing developments in the immediate vicinity are low-rise; thus the project would be visually prominent. The 225-ft.-tall building would be of similar scale to some newer highrises in the project area. It would contrast with most older development in the South of Market area, which ranges from about 25 ft. to about 55 ft. in height. The height of the base element is intended to relate to existing low-rise buildings along Howard and Second Sts. The project would be about 55 ft. shorter than the 75 Hawthorne St. building, and about 160 ft. shorter than the 100 First St. building, under construction. The project tower would be constructed of light-colored stone and lightly tinted glass. Existing structures in the area are mainly brick, stucco, stone, brick and concrete of various colors. The project would be similar

TABLE 3: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN OBJECTIVES OF THE MASTER PLAN AND THE PROPOSED PROJECT (Continued)

URBAN DESIGN OBJECTIVES

RELATIONSHIP OF PROJECT TO OBJECTIVES

in color with existing brick development such as the adjacent William Volker building. The building shape would be a series of steps on the east and west sides with stepped notched corners. The building would become more slender when viewed from the north or south, and would appear bulkier with setbacks at the upper stories when viewed from the east or west.

DOWNTOWN PLAN - URBAN FORM CHAPTER - OBJECTIVES

RELATIONSHIP OF PROJECT TO OBJECTIVES

Objective 1 - "Create an urban form for downtown that enhances San Francisco's stature as one of the world's most visually attractive cities." (p. 80)

The project would have a slender, stepped profile when viewed from the north and south with a stepped roof form. The project would have a stepped rectangular form when viewed from the east west, similar in shape to the Federal Reserve Building's Market St. facade. In addition, notches at the project building's corners would add visual interest.

Objective 2 - "Create and maintain a comfortable pedestrian environment." (p. 89)

Ground-floor retail uses, a walking gallery (which may include are exhibition space) and a recessed entries would provide pedestrian interest.

Objective 3 - "To create a building form that is visually interesting and harmonizes with surrounding buildings." (p. 92)

The project's base would be built to lot lines and would be of similar height to the prevailing street wall along Second St.

Objective 4 - "Create and maintain attractive, interesting urban streetscapes." (p. 93)

The building would be clad in light-toned material and would not use mirrored glass. It would have a shaped roof form and stepped facades on the east and west. It would not step-in on the north or south, the central portion of the building would be taller than the prevailing street wall height on Howard St.

SOURCE: Urban Design Element, San Francisco Master Plan, 1971; Downtown Plan, October 1985; Environmental Science Associates, Inc.

December 21 (PST)

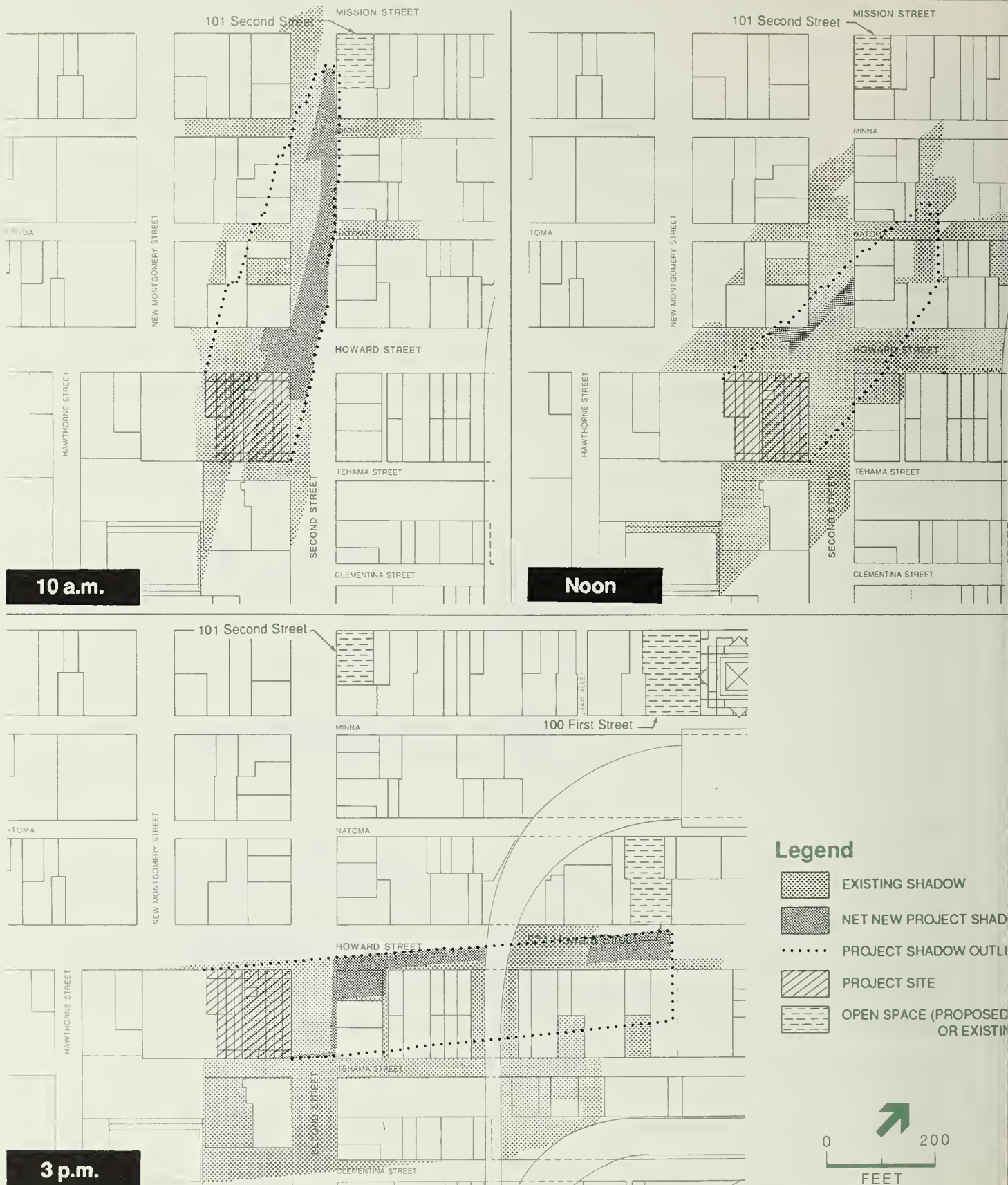
At 10:00 a.m. Pacific Standard Time (PST) on December 21 (see Figure 18, p. 69), the project would add new shadow to the Howard/Second intersection and to the center and east side of Second St. from Howard to about 75 ft. short of Mission St. At noon, the project would add about 500 sq. ft. of new shadow to Howard and Second Sts. near the Howard/Second intersection including about 75 ft. of sidewalk on the north side of Howard St. and 50 ft. of sidewalk on the east side of Second St. At 3:00 p.m. the project would add new shadow to the east sidewalk of Second St. between Tehama and Howard St. and to the south side and center of Howard St. between Second and First Sts. (including the south sidewalk of Howard St. for about 125 ft.). The project would not add shadow to open space at McKesson Plaza on Market St. because of intervening buildings.

March 21 (PST)

At 10:00 a.m. PST on March 21 (see Figure 19, p. 70) the project would add new shadow to Howard St. (including sidewalks) directly in front of the site. At noon the project would add new shadow to Second St. (including the sidewalks) directly in front of the project site and to the west side (including the sidewalk) and center of Howard St. from the projects southern boundary to about 75 ft. north of the Howard/Second intersection. At 3:00 p.m. the project would add new shadow to Second St. (including the eastern sidewalk) directly east of the site and to the center and southern side of Tehama St. for about 200 ft. east of Second St.

June 21 (PDT)

At 10:00 a.m. Pacific Daylight Time (PDT) on June 21 (see Figure 20, p. 71), the project would add new shadow to Howard St. as far as New Montgomery St., including about 100 ft. of the southern sidewalk on Howard St. and about 150 ft. of sidewalk on the northern side. The project would also add new shadow to the eastern side of New Montgomery (including the sidewalk) for about 75 ft. north of Howard St. At noon the project would add new shadow to Howard St., including about 100 ft. of the south sidewalk and about 20 ft. of the north sidewalk directly in front of the site. At 3:00 p.m. the project would add new shadow to the west side of Second St. (including the west sidewalk) directly east of the project site and to Tehama St. along the project frontage.



222 SECOND STREET

FIGURE 18
PROJECT SHADOW PATTERN
DECEMBER 21

SOURCE: Environmental Science Associates, Inc.

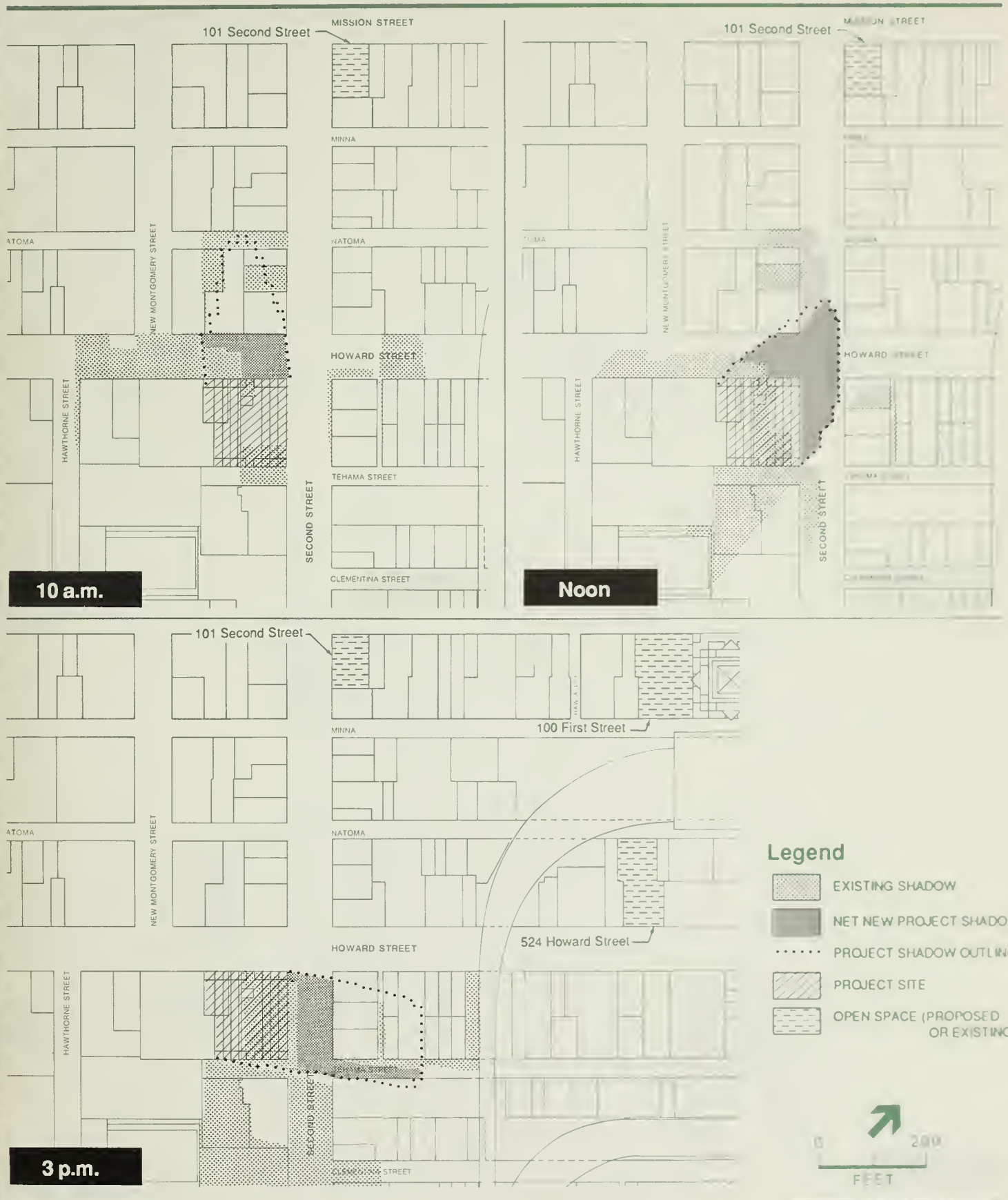
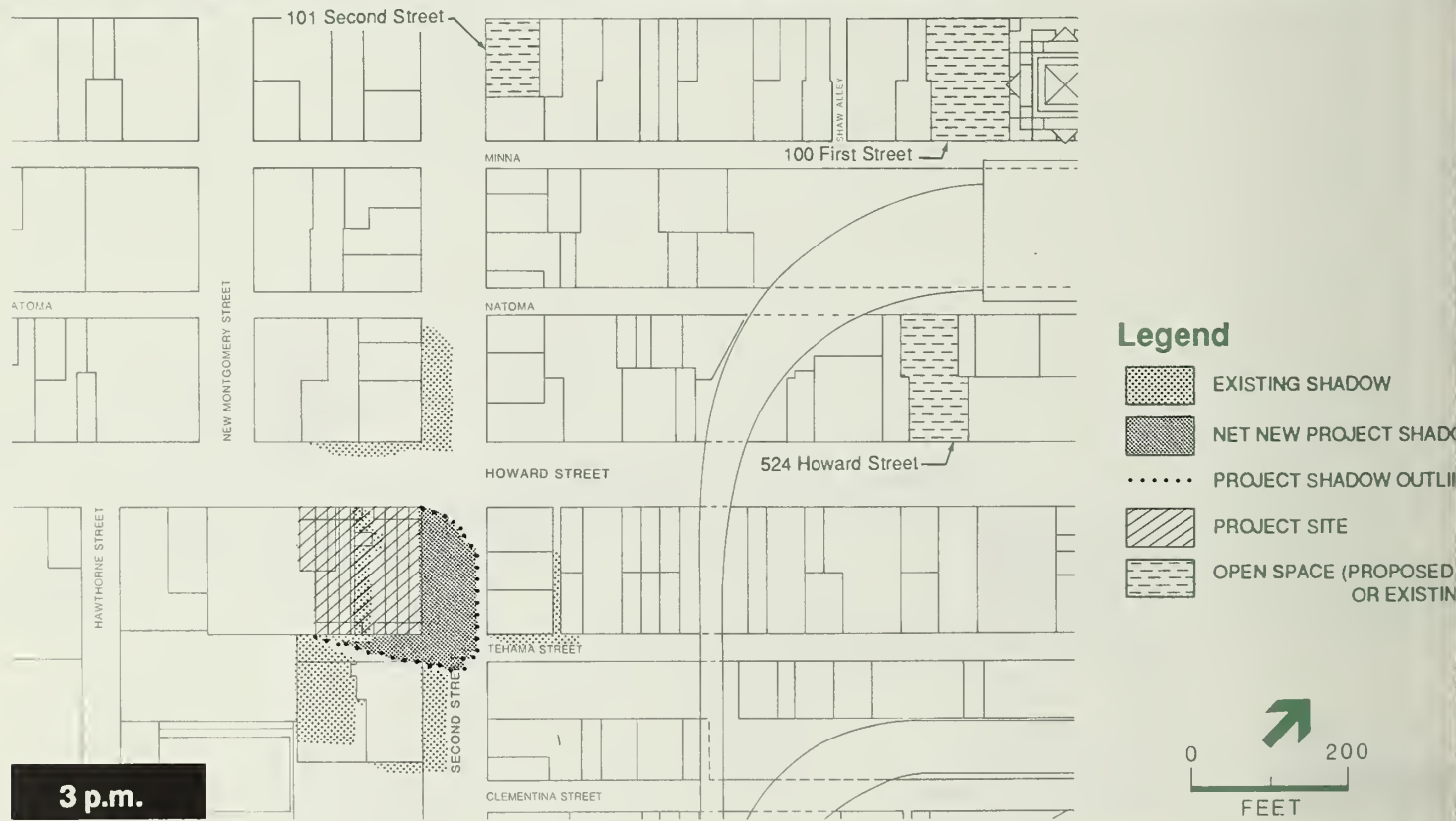
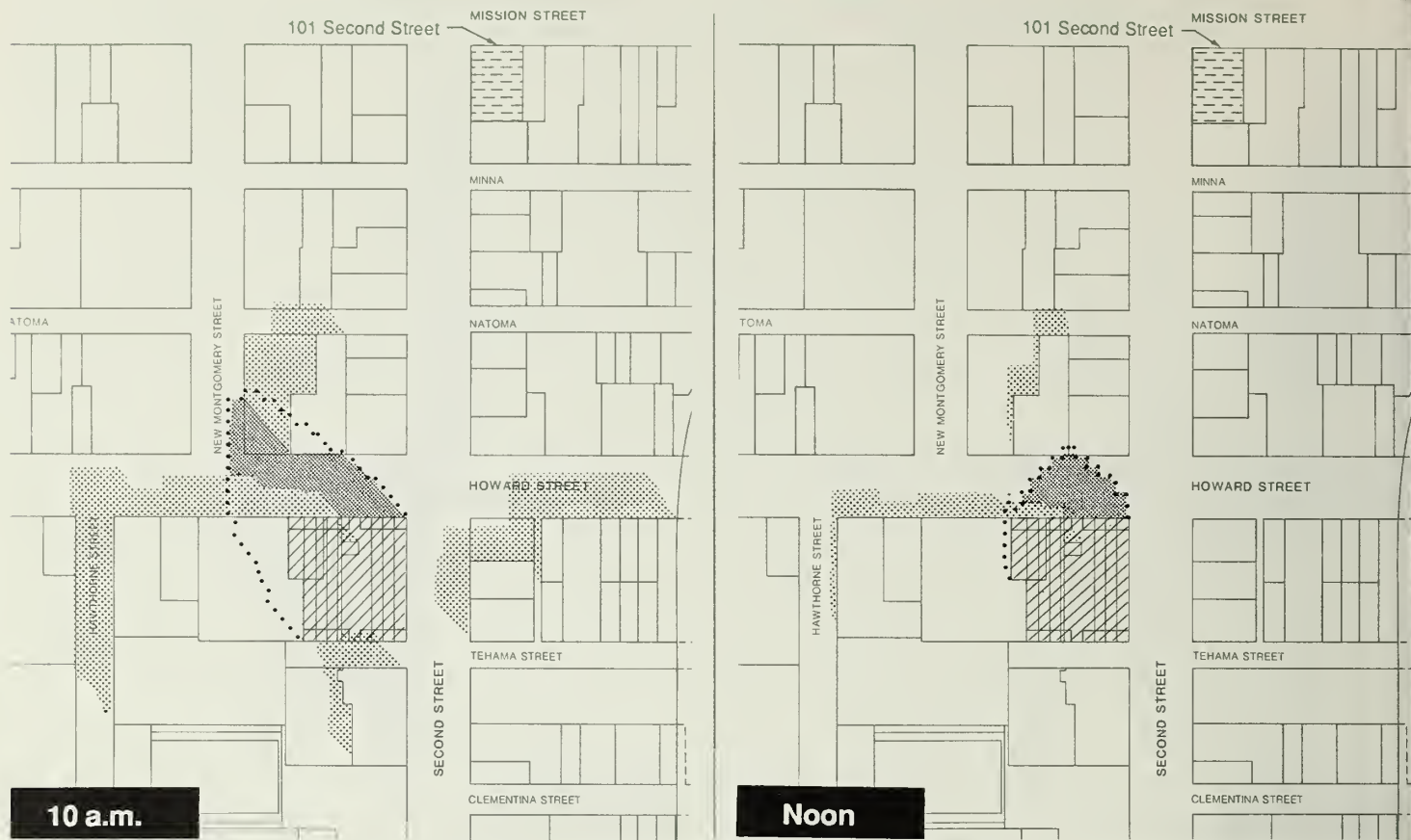


FIGURE 19
PROJECT SHADOW PATTERN
MARCH 21

SOURCE: Environmental Science Associates, Inc.



222 SECOND STREET

FIGURE 20
PROJECT SHADOW PATTERN
JUNE 21

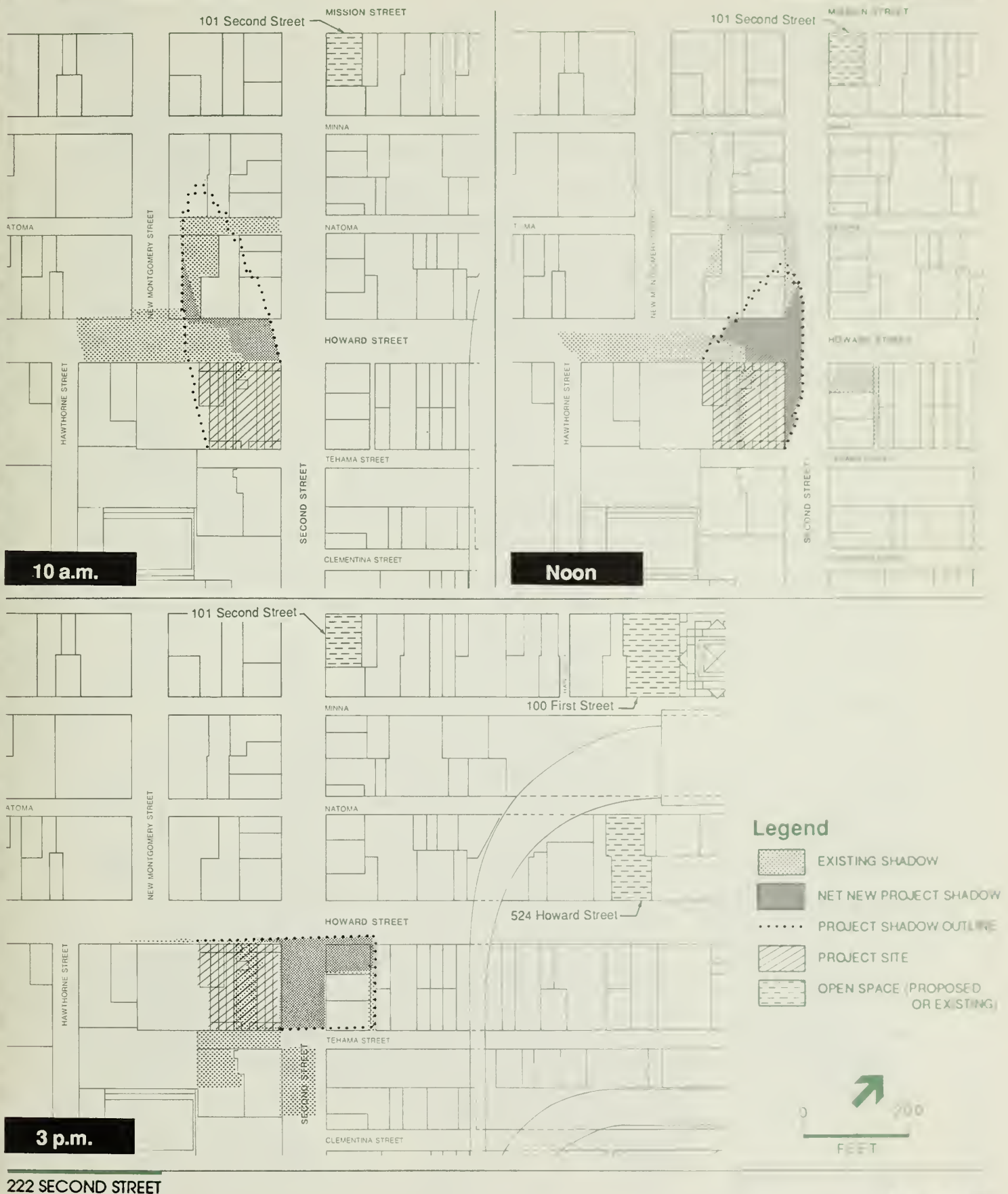


FIGURE 21
PROJECT SHADOW PATTERN
SEPTEMBER 21

SOURCE: Environmental Science Associates, Inc.

September 21 (PDT)

At 10:00 a.m. PDT on September 21 (see Figure 21, p. 72), the project would add new shadow to Howard St. directly in front of the project site, including about 80 ft. of the southern sidewalk and about 200 ft. of the northern sidewalk. At noon the project would add new shadow to Howard St. (including the sidewalks) directly in front of the site, and to the western side of Second St. (including the west sidewalk) from the projects southern boundary to about 50 ft. north of the Second/Howard intersection. At 3:00 p.m. the project would add new shadow to Second St. (including both sidewalks) directly east of the site; also about 150 ft. of sidewalk on the south side of Howard St. and about 60 ft. of the north-south alley located about 100 ft. east of the Second/Howard intersection.

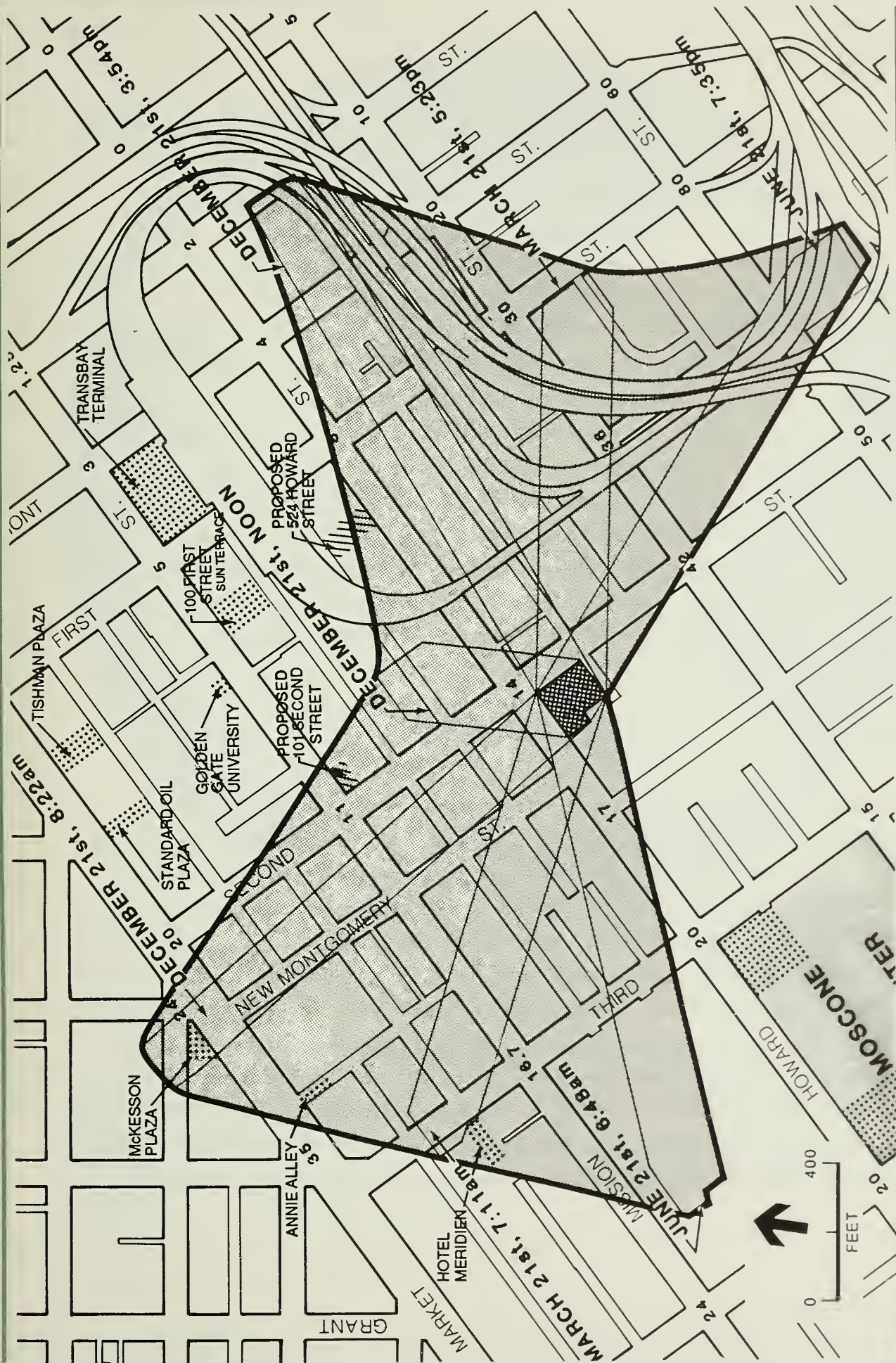
Open Space

The shadow studies show that the project would add no new shadow to any existing open space areas in the project vicinity. All open space in the project would be indoors. The project would add new shadow to the fourth-floor open space of the proposed 101 Second St. project, at 10:00 a.m. on December 21st. The project could add shadow to any on-site open space for the proposed 524 Howard St. project, at about 2:00 p.m. on December 21st.

Proposition K

In June 1984, the voters of the City and County of San Francisco approved Proposition K, the Park Shadow Ban initiative ordinance prohibiting the issuance of building permits for structures that would shade property under the jurisdiction of, or designated to be acquired by, the Recreation and Park Commission unless the City Planning Commission determines that such shade would have an insignificant adverse impact on the use of such property.

Figure 22, p. 74 shows the maximum extent of project shadow as though cast on the ground without existing intervening buildings. The project would add no new shadows to any property under the jurisdiction of, or designated for acquisition by, the Recreation and Park Commission, during the hours specified by Proposition K (one hour after sunrise to one hour before sunset at any time of the year).



Numbers represent ground elevation above mean sea level.

-  OPEN SPACE EXISTING
-  OPEN SPACE PROPOSED

222 SECOND STREET

FIGURE 22
YEAR ROUND SHADOW TRACE

SOURCE: Environmental Science Associates, Inc.

Sunlight Access to Public Streets

The City Planning Code (Section 146(a)) includes sun access criteria to allow direct sunlight to reach sidewalk areas of designated streets during critical hours of the day. In the case of sidewalks, the critical hours are considered to be the hours around noon.

City Planning Code Section 146(a) specifies Second St. and New Montgomery St. in the vicinity of the project site as streets on which existing sunlight reaching public sidewalks are to be preserved. Under Section 146, the west side of Second Street has sunlight protection designated by a 62° plane under which new buildings west of Second Street must remain. The project would lie under this plane. The proposed project would cast new shadows on the west side of Second St. (portions of which would continue to be shadowed by existing buildings): The project would add new shadows to the west side of Second St. during most of the day on December 21st. On March 21st, project shadows would not reach Second St. until the early afternoon hours, and would not reach New Montgomery St. at any time. On June 21st, project shadows would reach the west side of New Montgomery St. in the morning and would leave the street at approximately 10:15 a.m. PST. Project shadows would reach the east side of Second St., south of Howard St., after about 3:15 p.m. on June 21st and after about 2:00 p.m. on September 21st.

Sun Path Analysis

An analysis of sunlight duration at a point on the sidewalk at the northeast corner of the Second/Howard intersection, is shown in Figure 23, p. 76. A diagram of the sun's yearly path was superimposed on fish-eye lens photographs of the sky. These diagrams accurately depict the time of day (expressed as local solar time, which is close to Pacific Standard Time; during the time that Pacific Daylight Time is in effect, the sun location would be comparable to about one hour earlier than shown), throughout the year, that direct sunlight would reach each location, but creates an exaggerated visual image due to the distortion of the fish-eye lens. This technique differs from the shadow pattern analysis in that it does not predict the extent of shadow but rather the duration of sunlight and shade at one specific location. Horizontal lines indicate a specific date in the year (June 21, May 21/July 21 etc.), vertical lines indicate time of day. At the times of day and periods of the year, indicated by the horizontal and vertical lines, that the project outline falls on the diagram, the project would cast shadows at the point where the

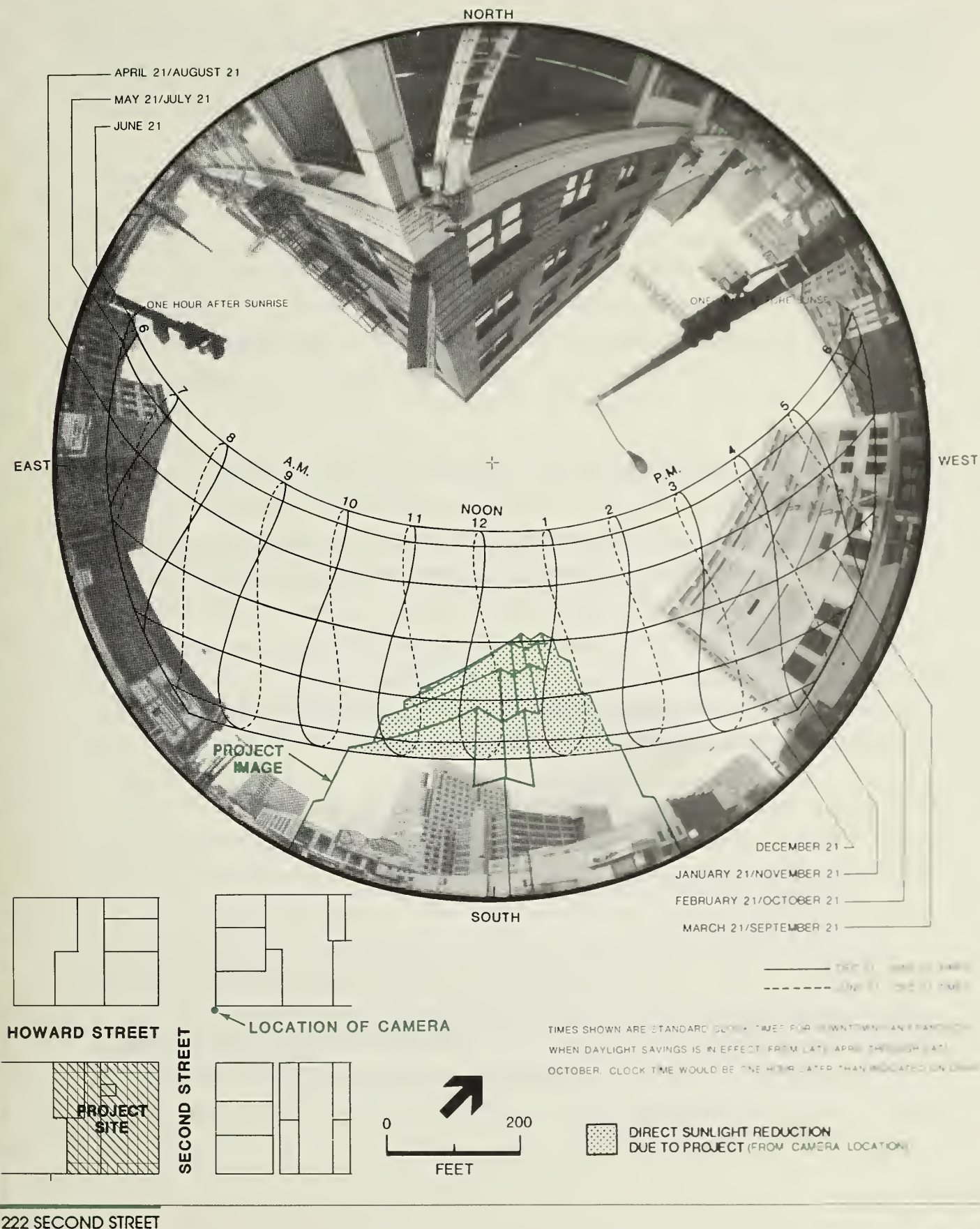


FIGURE 23
SUN PATH ANALYSIS

photograph was taken. Thus on Figure 23, for example, the project would add new shadow at that location on December 21 from about 10:30 a.m. to about 1:50 p.m.; on January 21 from about 11:00 a.m. to about 1:45 p.m.; on February 21 from about 11:30 a.m. to about 1:30 p.m. and on March 21 between about 12:30 and 1:00 p.m.

WIND/1/

Prevailing winds in San Francisco are from the northwest, west-northwest, west and west-southwest. Wind tunnel measurements were made at 20 surface locations near the project site for the four prevailing wind directions using a scale model of the site, the project and vicinity. The study included separate tests of northwest, west-northwest, west, and west-southwest winds under existing conditions and future conditions with the project.

Wind test data were combined with records to predict the wind speed that would be exceeded ten percent of the time at each test location. The predicted winds were then compared to the comfort and hazard criteria in the City Planning Code, established in the Downtown Plan (See Appendix B, p. A-35, for a summary of the full wind analysis). Throughout the following discussion, the wind speeds reported refer to the equivalent wind speeds that would be exceeded ten percent of the time./2/

The locations of the measurement points and the results of the wind tunnel study, including compliance with the comfort criteria, are summarized in Figure B-1, pp. A-39.

Wind speeds in the existing setting are from six to 11 mph at the 20 locations tested. The comfort criterion for pedestrians is not violated at any of the 20 locations. The seven mph comfort criterion for seating areas is not applicable to the project area as there are no seating areas in the vicinity.

The project would result in winds ranging from six to 13 mph. Winds would be increased at ten of the 20 locations tested, would remain the same at eight locations, and decrease at two locations. Increased wind speeds would be concentrated primarily along Howard St. at the Second St. intersection. At the north and south corners of this intersection in two locations tested, winds would be increased to 12 and 13 mph, respectively, violating the pedestrian

comfort criterion. Violation of the comfort criterion would also occur at the end of Tehama St., where winds would increase to 13 mph. Winds along Second St., just north and south of the Howard St. intersection, would remain the same or decrease by one or two mph.

The project was also tested in the "Potential Development Context." This scenario included not only approved buildings but also those undergoing environmental review (101 Second and 524 Howard for example). Under this scenario, the project would cause winds to increase at 15 locations, decrease at one location and remain the same at four locations. Winds would violate the pedestrian comfort criteria at the following locations: The east corner of Hawthorne St.; the mid-block section of Howard St., on the south side (two locations); the north and south corners of Howard St.; and the end of Tehama St.

The pedestrian hazard criterion, whereby hourly average wind speed may not reach or exceed 26 mph for one hour per year, would not be exceeded at any of the locations tested.

For an alternative that would not result in any exceedance of the pedestrian comfort criterion at any of the 20 locations tested, see Alternative B on pp. 131 to 133.

Additional measures recommended by the wind consultant which could reduce wind speeds along Tehama St., with the proposed project or with project alternatives, include large planters, mature trees (of at least 50 ft. in height), or kiosks for newspapers and/or flower vendors. For an explanation of the wind impact analysis methodology, see Appendix B, pp. A-35 to A-39.

NOTES - Shadow and Wind

/1/ This section is based on a study entitled, "Wind Tunnel Study of the 222 Second St. Building," March, 1987, and revised April, 1988, prepared by Dr. Bruce White for Environmental Science Associates, Inc. A summary of the report is included in Appendix B, p. A-39; the complete report is on file and available for public review at the Department of Planning, Office of Environmental Review, 450 McAllister St.

/2/ Equivalent windspeed is an hourly wind speed adjusted to incorporate the effects of gustiness or turbulence on pedestrians.

D. HISTORIC AND CULTURAL RESOURCES

An archaeological resources report was prepared for the project site and is on file and available for public review at the Department of City Planning./1/

The proposed project would include excavation to a depth of 22 ft. below grade, which would be about 12 ft. below the foundation level of the existing buildings. Excavation below the existing basement level would disturb soils never exposed before or soils disturbed when the hill was cut in the 1860s.

The report suggests that there is little likelihood of encountering archaeological resources from the Prehistoric, Spanish or Mexican periods (ca. 8000 B.C. - 1845 A.D.) on the project site. It is doubtful that remains from the early American period (1846-1848) would be recovered, as the project site remained undeveloped throughout those years.

While earlier archival research indicated little or no possibility of encountering cultural resources which precede the middle or late 1850s, recent discovery of prehistoric shellmounds in subsurface locations at 49 Stevenson Street, about two blocks north of the project site, and at other South of Market locations suggest that other deeply buried prehistoric sites may exist in the project vicinity, even in places subject to previous grading./2/ None of the documented uses of the project site appear to have been associated with historically significant persons or events. It is possible that archaeological deposits associated with the later Gold Rush, City Building and late Nineteenth Century periods may exist within the confines of the project area. The cultural resources from these periods possibly consist of architectural remnants, trash pits and privies. It is conceivable that these postulated cultural remains retain a reasonable degree of stratigraphic and contextural integrity.

NOTES - Historic and Cultural Resources

/1/ Allen G. Pastron, Ph.D., President, Archeo-Tec, consulting archaeologists, conducted archival research for the project site and the surrounding area. The ensuing report, entitled Cultural Resource Evaluation of 222 Second St., April 21, 1986, is on file at the Department of City Planning, Office of Environmental Review, 450 McAllister St.

/2/ Allen G. Pastron, Ph.D., President, Archeo-Tec, letter to Brian Boxer, EIP Associates, October 17, 1988. This letter is on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street.

E. TRANSPORTATION

CUMULATIVE CONTEXT

Introduction

The transportation sections of the Mission Bay and South of Market Area Plan EIRs address various transportation impacts in 2000 and 2020. The Mission Bay transportation impact analyses evaluate travel generated by Mission Bay in the context of growth in travel projected for the rest of the City and Bay Area. The South of Market analyses do the same for that area. It is growth in the City and region that would result in the greatest impact on most of the transportation systems studied.

The two EIRs use slightly different analysis methodologies, but employ the same basic screenline approach to study regional transportation impacts of San Francisco employment growth. Results differ somewhat, based on the differences in methods. The differences are generally less than five to ten percent; this difference is well within the range of accuracy of forecasts to scenarios 15 years away. Therefore, the two sets of results are compatible. This summary of cumulative transportation effects will report largely from the Mission Bay EIR, with South of Market EIR results included where there is notable additional information.

In summary, both EIRs show that by 2000, congested highway conditions would result in a shift from autos to higher use of transit and ridesharing by travelers from the Downtown & Vicinity. The East Bay would be the most congested corridor, the Peninsula would be the least. By 2020, travel demand would exceed the capacity of regional transportation systems. To serve regional growth, expanded transit and freeway systems would be required.

The proposed project at 222 Second Street is expected to be completed, occupied and the space new to downtown San Francisco absorbed by 2000. Therefore, the impacts of the project and its contribution to cumulative transportation impacts are analyzed largely in the 1985-2000 context. The information from the Mission Bay EIR for 2020 is presented for the reader's information and to provide a very long-term picture as it is presently reported.

The Analysis Years

The analysis includes studies of transportation conditions in the year 2000, and, in order to account for buildout of the Mission Bay planning area, in the year 2020 in that EIR. Analyses for the 1985-2000 timeframe can rely on reasonably confident estimates of regional transportation capacity improvements as defined by the regional agencies' highway and transit planners. There are no regional transportation plans or policies for 2020. Therefore, the Mission Bay EIR use a different approach for this longer-term analyses. Rather than reporting the impacts of future travel on existing or planned transportation systems, as is done for 2000, the estimates of 2020 travel conditions are used to identify the types of transportation improvements likely to be necessary to serve growth in travel between 2000 and 2020.

For both forecast years, 2000 and 2020, the projections of travel assume that many commuters from the Downtown & Vicinity who would otherwise drive, would shift to increased use of transit and ridesharing in response to growing highway congestion and the availability of improved transit service. The history of commuting to the Downtown & Vicinity shows that substantial shifts in travel from autos to other modes of travel have occurred when transit and ridesharing systems were improved. In addition, in the future, highways and bridges leading to/from San Francisco are expected to be considerably more crowded, and transit capacity is expected to be increased between downtown San Francisco and other Bay Area locations, making transit an attractive alternative to crowded freeways. The travel forecasting procedures therefore assume that shifts from auto to ridesharing and transit would continue into the future. (Mission Bay EIR, Vol. II, p. VI.E.52; South of Market EIR, p. 109-112, C-39.)

Regional Travel

Regional travel was analyzed for each of the three major approaches to San Francisco: the North Bay via the Golden Gate Bridge; the East Bay via the San Francisco-Oakland Bay Bridge; and the Peninsula via the U.S. 101 and I-280 freeways. The analysis for 2000 is based on comparing the projected demand for transportation service with the capacities expected to be available. The analysis for 2020 uses the transportation system capacities developed for 2000 as a base and identifies additional capacity above the 2000 level that would be needed to serve the travel demands of 2020.

The regional travel forecasts assume that where severe congestion is projected for the highway system and where parallel transit and ridesharing systems are available, travelers would choose to shift from their autos to fill the capacity available in transit and ridesharing systems. Those shifts are assumed to be made by travelers from the Downtown & Vicinity only, because they would have more transit and ridesharing options than travelers from other parts of the City or region. The shift to transit and ridesharing would be greatest for travel to the East Bay, somewhat less to the North Bay, and none would be necessary for travelers to the Peninsula by 2000.

Growth in the entire Downtown & Vicinity and the rest of the region, rather than growth in South of Market or Mission Bay alone, would be the primary source of travelers trying to cross the Golden Gate and Bay Bridges, and to use the U.S. 101 and I-280 freeways at peak hours. (Mission Bay EIR, Vol. II, pp. VI.E.31-34, 50-52 56-83, and 211-214; South of Market EIR, pp. C-47.)

Downtown & Vicinity - Muni

To analyze cumulative impacts on Muni, individual Muni routes were grouped on the basis of the location of their alignments and stops into the "Northeast," "Northwest," "Southwest," and "Southeast" areas of San Francisco, referred to as "screenlines." By 2000, ridership would generally be accommodated on the Muni screenlines. Slight overcrowding would occur on the Northwest screenline during the p.m. peak hour, and on the Northeast screenline during the p.m. peak period. However, by 2020, all but the Southwest screenline would be operating beyond Muni's load standard. Additional service required could include new light rail service to the Geary Boulevard corridor to the Northwest, and to the Bayshore corridor in the Southeast area of the City. (Mission Bay EIR, Vol. II, pp. VI.E.31-36, 62-67, 79, 93-99, 103-104, 115-124, 217, and 231; South of Market EIR, pp. 100-102, 114-117, C-20 to C-21, and C-37.)

North Bay Corridor

The Golden Gate Bridge and its approaches operated with moderate congestion (driving speeds of about 35 to 45 mph) in peak hours in 1985. By 2000, heavy congestion on the bridge (a driving speed of about 30 mph) would last about two hours if additional transit capacity between downtown and the North Bay were provided, and a substantial shift from autos to transit and

ridesharing were made by travelers from the Downtown & Vicinity. If no shift from 1985 transit use levels were to occur, the period of heavy congestion on the Bridge would last for about four hours in 2000.

Golden Gate Transit indicates that it would be able to increase its bus and ferry capacity between downtown and the North Bay by 2000 in response to the demand generated. Golden Gate Bus ridership would about double and ferry ridership would grow by about 60% from 1985 to 2000. Ridesharing is projected to increase by 7 to 15% between 1985 and 2000 in the North Bay.

By the year 2020, heavy congestion on the Golden Gate Bridge could last four hours, assuming the levels of transit and ridesharing used in 2000, if there were no additional transportation improvements between 2000 and 2020. By that time, the need to consider major new transportation infrastructure and transit systems will have become apparent.

That next phase of regional transportation planning could consider adding a second deck to the Golden Gate Bridge to provide transbay capacity for new bus and carpool lanes, or a light-rail line, either of which would extend between downtown San Francisco and Sonoma County. (Mission Bay EIR, Vol. II, pp. VI.E.31-34, 39, 41, 71-78, 80-82, 84-89, 94-100, 103-111, 114-125, 129-137, 214-215, and 225-226; South of Market EIR pp. 98-100, 103-105, 112, 118, 119-124, and C-41 to C-42.)

East Bay Corridor

There is virtually no room for additional vehicle traffic on the eastbound Bay Bridge approaches between 4:00 p.m. and 6:00 p.m. While the growth in travel demand on the Bay Bridge from the Downtown & Vicinity could be served by shifting those commuters from autos to transit and increasing ridesharing, trips to or from other areas of the region are not well served by transit and would continue to be made primarily in private vehicles.

Even with the substantial shift to transit and ridesharing assumed in the analysis, the Bay Bridge would operate at capacity for about 4.5 hours in 2000, resulting in severe congestion on the San Francisco approaches to the bridge, travel speeds of less than 30 miles per hour, and heavy congestion on the bridge itself every weekday afternoon. Were the shift to transit and ridesharing from 1985 levels not to occur the period of severe congestion in 2000, would extend for over 5.5 hours.

By 2000, the numbers and proportion of commuters from the Downtown & Vicinity on BART during the p.m. peak period would be substantially higher. The number of trips on AC Transit would increase by about 65% based on the service available and the need to accommodate some BART riders by 2000.

The ratio of passengers to seats on BART would increase from 1.30 in 1985 to 1.63 in 2000. AC Transit loads would increase from 0.85 passengers per seat in 1985 to 1.30 in 2000. The capacity of BART is based on the maximum capacity of BART's computer system to track trains in the transbay tube. The crowding projected for BART could not be fully mitigated during the peak period because of the systems technical operating limits.

An increase of seven percent in ridesharing from the Downtown & Vicinity across the Bay Bridge is projected for 2000. Even with substantial shifts to transit and ridesharing by commuters from the Downtown & Vicinity, by 2020 severe congestion on the Bay Bridge and its approaches would last for over five hours. The number of regional vehicle trips which could not be served by the Bay Bridge would grow from about 3,000 peak-period vehicles in 2000 to between 5,500 and 5,800 in 2020.

Mitigating those levels of congestion would require consideration of major changes to the regional transbay transportation system connecting the West Bay and East Bay. Virtually all of the concepts would require the City to work with MTC, Caltrans, and local government agencies to undertake the regional planning needed to expand transbay transportation capacity. (Mission Bay EIR, Vol. II, pp. VI.E.31-34, 37-41, 71-78, 80-82, 87-91, 94-98, 100-101, 103-123, 126-127, 129-131, 133-140, 215-216, and 226-230; South of Market EIR pp. 96-100, 102-104, 111-124, and C-42 to C-45.)

Peninsula Corridor

Between 1985 and 2000, traffic would increase on U.S. 101 and Interstate 280, the freeways serving the Peninsula. However, there would be less congestion on those routes at the San Mateo County Line than on the Golden Gate and Bay Bridges. Both U.S. 101 and I-280 were only moderately congested at the San Mateo County line in 1985. In or near San Francisco, the capacity of local streets, U.S. 101, and I-280 would be sufficient to handle future travel demand; the switch from highway to transit modes by Downtown & Vicinity

commuters assumed for the Golden Gate and Bay Bridges would not be required for the routes serving the Peninsula. The transit analysis for 2000 and 2020 in this regional corridor therefore uses the same rates of transit use as found in 1985.

U.S. 101 at the San Mateo County line would operate at capacity for about 2.5 hours in 2000, with heavy congestion and speeds of 30 miles per hour occurring during that afternoon peak period. By 2020, heavy congestion on U.S. 101 would last for over four afternoon hours. I-280 would operate with only moderate congestion at the county line in 2000 and 2020 with speeds averaging 35 to 45 miles per hour throughout the peak period. The congestion projected in 2020 would be reduced if commuters from the Downtown & Vicinity chose to increase their use of transit or ridesharing above the 1985 levels.

The use of transit to the Peninsula would increase. The level of service on transit would remain high, as there would be no system where ridership would be greater than available seats. Relocation of the CalTrain Station to Seventh and Townsend under some Mission Bay development scenarios would reduce potential use of that transit service; use of BART and SamTrans would grow by about 40% while CalTrain ridership would grow by just 4%. In 2020, CalTrain, BART and SamTrans would carry even larger loads, but would continue to operate below capacity. (Mission Bay EIR, Vol. II, pp. VI.E.31-38, 42-43, 61-62, 71-82, 85-89, 91-92, 94-99, 101-104, 106-109, 113-122, 128-137, 216-217, and 230-231; South of Market EIR pp. 98-105, 112-124, and C-43 to C-45.)

Regional Highway Constraint Points

As a result of growth in regional travel demand, the following freeway segments could constrain San Francisco travel: the I-80/580/I-880 interchange in Oakland; the Caldecott Tunnel on State Route 24 I-80 in Alameda and Contra Costa Counties, U.S. 101 in Marin County, and U.S. 101 south of I-380 in San Mateo. (Mission Bay EIR, Vol. II, pp. VI.E.133-140.)

Local Streets and Transit

Major Intersections

The street networks would be improved in a portion of the Mission Bay area under the I-280 Transfer Concept Program (TCP), which includes removal of the I-280 stub between Third and

Sixth Streets, widening and improving King Street, construction of new I-280 on- and off-ramps from King Street. Extension of Muni Metro light rail service to the CalTrain terminal (at Fourth and Townsend Streets) is also expected.

The point of greatest congestion within Mission Bay in 1985 was the intersection of Third and Berry Streets. That intersection was heavily congested because it served both city traffic on Third Street and traffic destined for downtown on the I-280 freeway. With the I-280 ramps relocated from Berry to King Street as proposed, the intersection of Third and King Streets would replace Third and Berry as the point of greatest congestion within Mission Bay. The intersection of Third and King would be severely congested in all Mission Bay Alternatives by 2020. Most of the traffic passing through this critical intersection would not be destined for Mission Bay, but would be traffic from other areas, including particularly the downtown, using the I-280 freeway interchange or traffic which needs to pass through Mission Bay on its way to other parts of the City.

A second intersection along four-lane King Boulevard at Fourth Street would also be congested by 2020. That congestion would again be caused primarily by traffic not destined to Mission Bay. Congestion projected for King Street and its intersections in the Mission Bay Project Area could be mitigated with a six-lane roadway, with parking permitted only at off-peak hours. To mitigate congestion projected for Third and Mariposa Streets, that intersection could be widened to allow double southbound right-turn lanes on Third and a separate eastbound left-turn lane on Mariposa.

It is expected that operating conditions on local South of Market streets and intersections not serving freeway ramps would continue to operate in a generally free flowing manner in the future, at least to 2000. Severe congestion would continue to occur in both 2000 and 2020 on several of the James Lick (I-80) freeway approaches in the South of Market Area near Mission Bay. Those streets and freeway ramps serve traffic destined for the Bay Bridge and Peninsula. Several of those streets are heavily congested now. The number of severely congested I-80 approach intersections would increase by 2000 and increase again by 2020, whether or not Mission Bay is developed. First and Harrison, Fifth and Bryant, and Sixth and Brannan presently operate at LOS F and would continue to do so in the future. Other intersections at or near freeway ramps, such as Mission and Beale and Fourth and Harrison

would deteriorate to LOS E or F in the future. Intersections near freeway ramps are often affected by freeway access queues, as cars waiting to enter the freeway back up to or through these intersections. This affects local traffic attempting to use streets in these areas. Some traffic will shift and use less congested routes in the future as this problem increases. Continued enforcement of the ordinance passed in 1987 prohibiting blocking an intersection should help to limit this problem.

Mission Bay growth would account for less than 5% of total traffic at the freeway approaches and never more than 15% of total traffic on the major through routes within the Mission Bay Area. Growth in the South of Market area would account for a smaller proportion of total traffic at freeway approaches than would Mission Bay. The 222 Second Street project would contribute less than one percent of the traffic at these intersections. (Mission Bay EIR, Vol. II, pp. VI.E.2-13, 140-148, 166-175, 199-201, and 218-219; South of Market EIR, pp. 105-106, 124-126, and C-47 to C-48.)

Local Transit

For the local street system to operate at the level described above, there would have to be a high level of public transit use in Downtown & Vicinity. In 1985, about 55% of all afternoon peak-hour outbound trips from the Downtown & Vicinity were on transit. That level of transit could grow to about 70% of all trips, based on the increased capacity of transit systems expected to be available by 2000.

Muni proposes increased route and service capacity in the year 2000, in the Mission Bay Area. This increased capacity would be able to accommodate demand from growth in that area, except for the 47-Van Ness line. That line would exceed Muni's load factor standard because it would carry loads more than 25% over seated capacity if housing were built in the area.

The Muni Metro expansion to Mission Bay would also serve the southern portions of the South of Market area. An improvement in the southwest corridor Muni service would also occur as a result of completion of the Muni Metro turnaround at the foot of Market St. in the future. Other Muni corridors are expected to remain at current levels of service at least through year 2000. (Mission Bay EIR, Vol. II, pp. VI.E.148-152, 175-178, 201-202; South of Market EIR, pp. 112-117, C-45 to C-46).

PROJECT IMPACTS

Travel Demand

On the basis of land use, the project would generate about 5,610 net new person trip-ends (pte) per day./1/ Travel generated by existing office space on the project site (about 90 pte per day) has been subtracted from the total new travel (about 5,700 pte per day) from the site to give the net new travel from the project./2/ The trip generation calculations include travel to and from the project site by both visitors and employees of the project. Additionally, although expressed on a person trip-end basis, the trip generation includes all travel to and from the project in autos, service vehicles and trucks, on public transit and other modes (i.e., walking, bicycles, taxis, etc.). Projected outbound (peak commute direction) p.m. peak-period and peak-hour trips by mode expected to be generated by the project are shown in Table 4 on p. 89. About 794 new outbound trips from the project would occur during the p.m. peak-period, of which about 493 would occur in the p.m. peak hour./3/

Assignments to travel modes for the project have been made on the basis of modal splits from the Mission Bay EIR for the years 1985 and 2000./4/ The 1985 modal split has been used for the purpose of identifying impacts at the single-project level (as opposed to impacts at the cumulative level). The year 2000 modal splits have been applied to the project travel for the purpose of comparing project travel with cumulative future travel demand on the transportation systems serving San Francisco. The modal splits used were derived from aggregate data for the C-3 District, the zoning district that contains the project site, and the rest of Downtown & Vicinity. The actual modal split for travel from the project may vary from the average. However, because the travel demand forecasts used to derive the average modal split data implicitly include the travel from the project, application of the average modal split data to project travel has been assumed to be sufficiently accurate for purposes of comparison.

Master Plan Policies

The project would relate to Objective 1, Policy 7 of the Transportation Element of the San Francisco Master Plan, to, "seek means to reduce peak travel demand."/5/ As required by

TABLE 4: PROJECTED OUTBOUND TRAVEL DEMAND BY MODE FROM 222 SECOND ST. (pte)/a/

Travel Mode	P.M. Peak Period/b/		P.M. Peak Hour /b/	
	1985	2000/c/	1985	2000/c/
Drive Alone	164	128	94	72
Carpool	102	98	59	56
Muni	225	188	140	115
BART	142	193	94	129
AC Transit	52	64	37	45
SamTrans	9	9	8	7
SPRR (Caltrain)	16	16	11	11
GGT Bus	23	36	17	25
Ferry	5	6	4	4
Other	56	56	29	29
TOTALS (rounded)	794	794	493	493

/a/ Person trip-ends.

/b/ The peak hour occurs during the two-hour peak period of 4:00 p.m. to 6:00 p.m.

/c/ The year 2000 modal split accounts for changes in travel behavior which are assumed to occur as a result of growth in Downtown & Vicinity, as described in Mission Bay EIR, Vol. II, pp. VI.E 53-54.

SOURCE: Environmental Science Associates, Inc.

Section 163 of the City Planning Code, a member of the building management staff would be designated as a "transportation broker" to coordinate measures that are part of a transportation management program, such as: encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak-period congestion by a planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART, Muni, and other carriers' passes to employees; and encouraging employee carpool and vanpool systems in cooperation with RIDES for Bay Area Commuters by providing a central clearinghouse for carpool and vanpool information.

General Objective 1, Policy 6 of the Transportation Element states as a goal to "develop a financing system for transportation in which funds may be allocated without unnecessary

restriction for priority improvements according to established policies." (p. 10) The project sponsor has agreed to participate in legally adopted funding measures for downtown transit funding, proportional to demand created by the project.

The Downtown Plan discourages, "new long-term spaces in and around the downtown" (p. 126 of the Downtown Plan). The project would add 70 parking spaces which would be for short term use. Parking spaces would be controlled to assure priority for vehicles driven by the physically handicapped, vehicles using spaces for short-term rather than all-day parking, and vanpool and carpool vehicles. The parking rates would be structured to favor short-term parking (see mitigation measure p. 121).

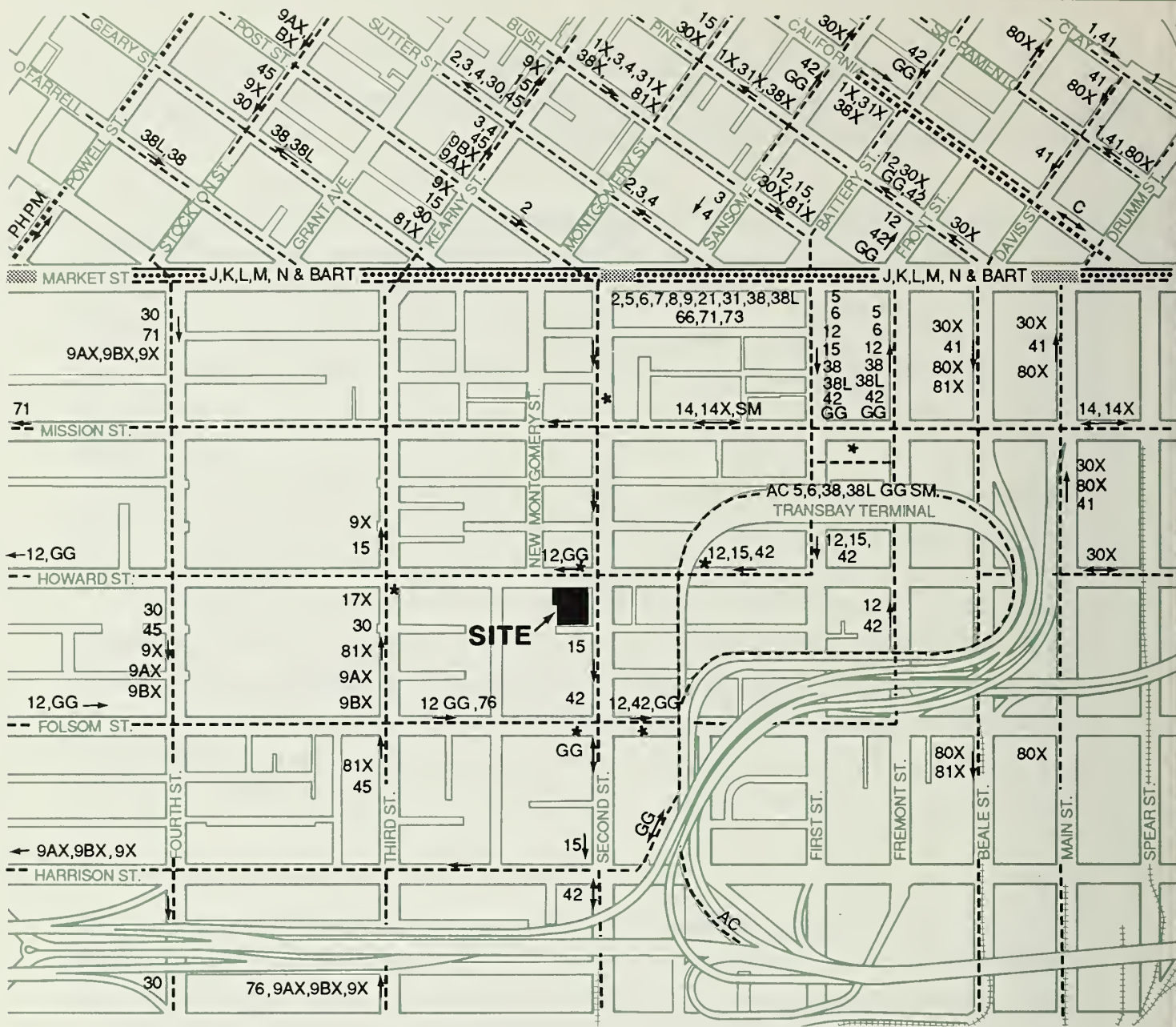
The project would relate to Objective 1, Policies 1, 2, 3, and 6 of the Downtown Transportation Plan, portion of the Transportation Element of the Master Plan. Policy 1 encourages conversion of existing parking facilities to short-term use and rate structures which favor short-term parking. Policy 2 states that additional short-term parking facilities should be located in the designated parking belt outside the downtown core. Policy 3 discourages provision of long-term parking spaces in and around downtown and states that replacement of long-term parking spaces lost in the downtown should occur in areas peripheral to the downtown commercial district. Policy 6 seeks to organize and control traffic circulation in the downtown core by channeling vehicles into peripheral parking facilities.

Transit

Local Transit

There are about ten Muni routes with stops within one block of the project site. The Transbay Terminal is located two blocks northeast from the site. Muni Metro and BART service in the Market St. subway are accessible via the Montgomery St. station (two blocks north of the site). Figure 24, p. 91, shows transit routes in the project area. Photographic examples of p.m. peak-hour loadings on Muni vehicles are shown in Appendix D, Figures D-1, pp. A-45 to A-47.

During the p.m. peak hour in 1984, most of the transit agencies were found to be operating in Level of Service (LOS) D or better. The exceptions include BART Transbay, where conditions



LEGEND

- BART AND MUNI METRO STATION
- BART ROUTE
- MUNI METRO ROUTE
- BUS ROUTE
- CABLE CAR ROUTE

- 2,30,K,L ROUTE DESIGNATION
- ROUTE DIRECTION
- * BUS STOP (WITHIN ABOUT ONE BLOCK OF SITE)
- SM SAMTRANS
- GG GOLDEN GATE TRANSIT
- AC AC TRANSIT



222 SECOND STREET

FIGURE 24
TRANSIT ROUTES IN
THE PROJECT AREA

were found to be at LOS F, and MUNI in the northwest and southwest corridors, where operations were found to be in LOS E. Table D-1, Appendix D, p. A-44, contains descriptions of the various LOS for bus transit. In the p.m. peak hour in 2000, the project would generate about 140 new Muni trips and about 94 new BART trips outbound from the project site. Addition of the project p.m. peak-hour Muni riders to the existing (1984) Muni ridership would not increase the loading ratios on any corridors, and thus would not change the LOS. The number of Muni riders from the project would not be sufficient to affect Muni operations in any of the four corridors. Addition of BART riders from the project to the existing BART ridership would not increase p.m. peak hour Transbay or westbay loading ratios or change LOS.

Transit Corridor Analysis

The project would contribute to increases in transit ridership in the major transit corridors leading from downtown San Francisco. Existing peak-period and peak-hour transit ridership would be increased by about 0.4%. A ridership increase of this magnitude would not be measurable against the day-to-day fluctuations in transit ridership and would not have a noticeable effect on transit LOS.

Project Transit Costs

Muni. The estimated 1981-82 (most recent available) net marginal cost (or increase in the deficit for Muni operations) per additional ride is \$0.50./6/ This deficit-per-ride figure, because it is a marginal cost, is appropriate for small increases in Muni ridership (such as that requiring one or a few additional vehicle trips). Assessments of costs that would result from cumulative development require the inclusion of additional cost factors and may be best projected using average costs./7/ It is reasonable to conclude that average costs would be significantly higher than marginal costs.

The project would generate about 94,752 peak-period, peak direction rides per year in the year 2000, which would generate a cost deficit to Muni of about \$47,376, assuming that the cost per ride deficit remains the same./8/ The extent to which this project would offset this deficit through its contributions to the General Fund, the Transit Impact Development Fee, and sales tax revenues is not known. State and federal funds to Muni are decreasing, and the City is reviewing other options for increased revenues.

The sponsor would be required to pay a one-time Transit Impact Development Fee (TIDF) to finance the increased cost of Muni services necessitated by the project, at a rate of \$5.00 per gross square foot of net new office construction. Based on the \$5.00 rate, the project would yield about \$1.16 million. The final determination of TIDF would be made on the basis of a more detailed review of architectural plans submitted to the City.

BART. For the year ending June 30, 1985, the average net operating deficit per passenger trip for BART was about \$1.20./9/ On the basis of about 216,700 rides per year in the year 2000, the estimated annual BART deficit attributable to the project would be about \$260,040, assuming that the cost per ride deficit is the same./10/ The project would generate a total of about \$10,786 in revenues to BART, including about \$3,100 in property tax revenues, and about \$7,686 from the 75% of the 0.5% transit sales tax allocated to BART. This amount does not include the remaining 25% of the 0.5% BART sales tax revenue distributed by MTC among BART, Muni and AC Transit. After subtraction of BART's revenues from sales and property taxes that would be generated by the project, the net operating deficit of BART due to the project would be about \$193,334. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future.

Traffic

Local Intersection Traffic

The Second and Howard Sts. intersection currently operates at Level of Service (LOS) "A" with minimal traffic delays. Pedestrian traffic in crosswalks at Howard St. delays turns on and off Howard St., resulting in an LOS "C" operation for turning movements. Project impacts at the intersection closest to the project site (Second and Howard Sts.) would primarily result from service-vehicle and pedestrian traffic and from traffic using the proposed 70 on-site spaces. However, peak-hour traffic to the project site itself would be expected to decrease in the future, because of the decrease in parking spaces on-site and the change from mostly long-term parking spaces to mostly short-term parking spaces, and therefore, peak-hour traffic from the project site at local intersections would be less than at present. The existing on-site 108-space parking lot generates primarily peak-hour traffic since it provides mostly long-term commuter parking. The proposed 70 spaces in the project would be primarily for short-term parking (the rate structure

would be such as to discourage long-term parking). The 70 short-term spaces would generate more trips per day through the local intersections than the 108 long-term spaces, but fewer peak-hour trips, thus there would be less impact through the intersection than there is currently. Persons coming to the project and desiring long-term parking would be expected to park elsewhere (probably in lots to the south) rather than drive to the site and pay a higher rate, and these trips would be dispersed among intersections throughout a larger area.

Freeway On-Ramp Analysis

Traffic operations at intersections serving freeway on-ramps near the project site are shown in Table 5, p. 95. LOS descriptions are shown in Tables D-3 and D-4, Appendix D, pp. A-52 and A-53. The project would incrementally contribute to traffic at freeway on-ramps during the p.m. peak hour. The intersection of Fourth and Harrison Sts. currently operates in LOS C conditions during the p.m. peak hour; however, congestion on the James Lick Freeway (I-80) sometimes backs up traffic onto surface streets, including the Fourth and Harrison Sts. intersection, during the p.m. peak hour. During these periods, the two right turn lanes on Fourth St. operate in LOS E/F conditions. The intersection of First and Harrison Sts. currently has LOS F conditions during the p.m. peak hour. Operations at LOS F represent unacceptable delay to motorists. Queues of vehicles are present during the p.m. peak hour on the approaches to the on-ramp at First and Harrison Sts. Vehicles from the project would be expected to contribute to the existing jammed conditions at this intersection. Project effects at the Fourth and Harrison Sts. intersection would not be sufficient to change the LOS during the p.m. peak hour; however, the volume-to-capacity (V/C) ratio would increase (as shown in Table 5).

Freeway Corridor Analysis

The project would contribute to increases in traffic on the major freeways serving downtown San Francisco. Traffic generated by the project would increase total traffic on major freeways during the p.m. peak period and the p.m. peak hour by about 0.2% or less. Such increases would not be measurable against the day-to-day fluctuations in traffic volumes. Because the Bay Bridge p.m. peak-hour eastbound traffic flow is functionally at capacity, the travel demand from the project would not be expected to increase the flows on the Bay Bridge in the peak-hour; rather, the East Bay-bound auto traffic from the project would most likely compete with and possibly displace existing users of the Bay Bridge into later portions of the peak period. This competition for

TABLE 5: PROJECTED PEAK-HOUR INTERSECTION VOLUME-TO-CAPACITY RATIOS (V/C) AND LEVELS OF SERVICE (LOS)/a/

<u>Intersection</u>	<u>Existing</u>		<u>Existing+ Project</u>		<u>Mission Bay (2000)</u>	
	<u>V/C</u>	<u>LOS</u>	<u>V/C</u>	<u>LOS</u>	<u>V/C</u>	<u>LOS</u>
Second and Howard Sts./b/	0.53	A/c/	0.53	A	0.63/d/	B /d,e/
Second and Mission Sts./b/	0.71	C/e/	0.71	C	0.85/d/	D/d,e/
First and Harrison Sts.	1.10/f/	F /f/	1.12	F	1.27/f/	F /f/
Fourth and Harrison Sts.	0.72/b/ 0.69/f/	C /g/ B /f/	0.73	C	0.91	E /f,g/

/a/ LOS descriptions and relationship to V/C ratios are shown in Table D-3, p. A-52 of Appendix D.

/b/ Based on 1986 traffic counts conducted for the 101 Second St. Office Project EIR (85.414E).

/c/ Turning movements on and off Howard St. operate at LOS C. This condition would continue in the future.

/d/ Not analyzed in the Mission Bay EIR; data from Downtown Plan EIR. The projected V/C ratio is consistent with the expected 20% increase in traffic volumes South of Market.

/e/ The right-turn movement from Second Street onto Mission Street operates at LOS D. This condition would continue in the future.

/f/ Mission Bay EIR contains analyses of existing and projected levels of service at the First and Harrison Sts. and the Fourth and Harrison Sts. intersections. (Vol. II, Table VI.E.23, p. VI.E.144.) Depending on which alternative in the Mission Bay Plan is selected, the year 2000 V/C rating at Fourth and Harrison Sts. would be between 0.90 and 0.92. The differences between the existing values for V/C ratios and LOS are due to traffic conditions on days when traffic was counted and to different traffic assumptions used by the traffic consultants.

/g/ The two right lanes on Fourth Street operate at LOS E/F. This condition would continue in the future.

SOURCE: Environmental Science Associates, Inc.

access would occur at the on-ramps to the Bay Bridge and any displacement of existing users to later time periods would depend on the time of arrival of project vehicles at the on-ramps. Some drivers would shift to carpools or transit as a result of cumulative displacement.

Pedestrian Movements

The primary entrance to the building would be on Second St. with secondary access on Howard St. These would provide access to open space areas (galleria and atrium) and the lobby, where

elevators serving upper office floors would be located. Entrances to ground-floor retail space would also be located off of the open space areas.

Table 6, p. 97, summarizes pedestrian flow conditions on sidewalks and crosswalks adjacent to the site and at the intersection of Second and Howard Sts. Operating conditions on sidewalks and crosswalks have been evaluated in terms of pedestrian flow categories or regimen, which relate the density of pedestrians in a specific time period (pedestrians per foot of clear sidewalk width per minute) to the quality of pedestrian flow (the difficulty of maintaining walking paths and speeds on a sidewalk). See Appendix D, Table D-2, p. A-48, for an explanation of pedestrian flow rates and LOS. Figure D-2, pp. A-49 to A-50, shows photographs of sidewalk conditions for each flow regime. These sidewalks and crosswalks currently operate in open and impeded conditions during the noon-peak 15-minute period and in unimpeded conditions during the 15-minute p.m. peak period (in the project vicinity, p.m. peak period pedestrian volumes are generally heavier than in the noon peak)./11/

The project at full occupancy would generate about 240 new pedestrian trips on sidewalks and crosswalks in the vicinity of the site during the 15-minute peak-period of the noon hour, and about 170 new pedestrian trips during the p.m. 15-minute period. Conditions on these sidewalks and crosswalks following addition of the project pedestrian travel to existing volumes would be the same as at present except for the Second St. sidewalk and the Second St. and Howard St. crosswalks during the noon 15-minute peak. Conditions on the Second Street sidewalk and the crosswalk across Second St. would worsen from open to unimpeded and the crosswalk across Howard St. would worsen from unimpeded to impeded.

In the year 2000, during the noon 15-minute peak, the Howard St. sidewalk would remain in unimpeded conditions, the Second St. sidewalk and crosswalk would worsen from open to unimpeded conditions and the Howard St. crosswalk would worsen from unimpeded to impeded conditions, compared to existing conditions (see Table 6). The project pedestrian traffic would represent about 58% of the pedestrian volumes on the sidewalks and about 60% of the pedestrian volumes on the crosswalks during the noon hour.

P.M. 15-minute peak operations in the year 2000 would continue to be in the unimpeded range on sidewalks and crosswalks in the project vicinity, as under existing conditions. Project pedestrian traffic during the p.m. peak 15-minute period would represent about 46% of the total volumes in the year 2000. There would continue to be adequate sidewalk and crosswalk widths for pedestrians (see discussion above and Table D-2, Appendix D, p. A-48).

TABLE 6: PEAK PEDESTRIAN VOLUMES AND FLOW REGIMEN (project side of street)

	Total Width (feet)	Effective Width (feet)/a/	Existing		Existing Plus Project		2000/e/					
			p/f/m/b/	Flow Regimen/c/	p/f/m	Flow Regimen	p/f/m	Flow Regimen	Project Percent/e/			
<u>NOON PEAK /d/</u>												
Howard St. sidewalk	12.0	10.2	0.5	Open	1.2	Unimpeded	1.3	Impeded	58%			
Second St. sidewalk	15.0	12.25	0.4	Open	1.1	Unimpeded	1.2	Unimpeded	58%			
Crosswalk across Howard St.	16.0	16.0	0.8	Unimpeded	2.1	Unimpeded	2.2	Unimpeded	60%			
Crosswalk across Second St.	14.75	14.75	0.4	Open	1.2	Unimpeded	1.3	Unimpeded	60%			
<u>P.M. PEAK/d/</u>												
Howard St. sidewalk	12.0	10.2	0.6	Open	1.1	Unimpeded	1.2	Impeded	46%			
Second St. sidewalk	15.0	12.25	0.5	Open	0.9	Unimpeded	1.0	Unimpeded	46%			
Crosswalk across Howard St.	16.0	16.0	0.9	Unimpeded	1.8	Unimpeded	1.9	Unimpeded	46%			
Crosswalk across Second St.	14.75	14.75	0.6	Open	1.1	Unimpeded	1.2	Unimpeded	46%			

/a/ The effective width is the narrowest portion of the sidewalk and is calculated by subtracting the space taken by poles, planter boxes, people standing at windows, etc., from the total width.

/b/ Pedestrians per foot of effective sidewalk width per minute.

/c/ See Table D-2 and Figure D-2, Appendix D, pp. A-?? to A-??, for descriptions of pedestrian flow regimens.

/d/ Peak 15-minute periods.

/e/ Percentage of project-generated pedestrian trips of total pedestrian volumes in 2000.

SOURCE: Environmental Science Associates, Inc., and Pushkarev and Zupan

The project would have a 25-ft. curb-cut for the two off-street loading docks and a separate 25-ft. curb-cut for the ramp leading to the project garage located on Tehama St. The project would improve pedestrian safety as it would remove existing curb cuts from both Howard and Second Sts. and replace them with curb-cuts on Tehama Sts.; Tehama St. has lighter pedestrian volumes than Howard or Second Sts. as it is a dead-end alley. Additionally, the project would reduce the number of on-site parking spaces by 38.

OFF-STREET PARKING AND LOADING REQUIREMENTS AND DEMAND

Parking

Parking demand was projected for the 222 Second St. project on the basis of the estimated vehicle traffic generated by the project. The project would create net new long-term parking demand for about 185 long-term spaces and 15 short-term spaces for a total net new demand of 200 equivalent daily spaces. The project would provide 70 parking spaces (all short-term), and eliminate 108 spaces, resulting in an unmet demand of about 238 equivalent daily spaces ($200 + 108 = 308 - 70 = 238$ spaces).

The proposed project is in the C-3 District, in which off-street parking is not required for commercial uses. The City Planning Code allows accessory parking up to seven percent of the gross floor area of the project. Parking would be subject to rates that encourage short-term use and discourage all-day parking. Occupancy in public off-street parking lots and garages in the vicinity would be expected to increase from the existing 87% to 91% with demand generated by the proposed project.

Loading

Based upon data published in Center City Circulation Program: Pedestrian Circulation and Goods Movement, the new building would generate about 53 service vehicle stops per day./12/ Average hourly loading space needs are given in terms of spaces per hour per 10,000 gsf of building space; average demand for the project would be about 2.6 spaces per hour and peak hourly demand would be 3.2 spaces.

Under the City Planning Code, the project would be required to provide two loading docks to serve the 236,750 gsf of office space (0.1 spaces per 10,000 gsf = 2.4 spaces for 236,750 gsf of office space). Retail use in the project would not be of sufficient size to require additional

loading facilities. (The Code allows the substitution of two service van spaces for each loading space, provided that at least one-half the required number of spaces are provided for trucks.)

Two truck loading spaces with a curb cut of about 25 ft. would be located on the ground floor with access from Tehama St. A ramp with a separate curb cut of about 25 ft., would provide access to the project garage. The project would satisfy the City Planning Code requirement for provision of loading docks, but would not meet the average demand for 2.6 loading spaces per hour or peak hourly demand for 3.2 loading spaces per hour.

Analysis of the design of the proposed Tehama St. loading/service area indicates that standard single-unit trucks would be able to enter the loading area by backing in from a westbound position on Tehama St., as required by Department of Public Works standards.

DEMOLITION, EXCAVATION, AND CONSTRUCTION TRAFFIC/13/

During the projected 22-month construction period, transportation impacts would result from truck movements to and from the site during demolition, excavation, and construction activity. Demolition and excavation would require about four months and would generate an average of 15 truck movements per day in or out of the project site, between 9:00 a.m. and 3:30 p.m. Trucks would use the Fourth St. on-ramp to reach the freeway to haul debris and excavation materials to a disposal site in South San Francisco. Construction activities (steel erection and finishing) would generate an average of five truck movements per day during the remaining 18-month period. Deliveries of materials would occur between 9:00 a.m. and 3:30 p.m.

Primary construction truck access to the site is proposed to be from Howard St. with secondary access from Tehama St. During the construction period, the sidewalks fronting the project site on Howard, Second and Tehama Sts. would be closed, and the curb lanes on Howard and Second Sts. would need to be closed to provide pedestrian walkways. Additionally, half the right-of-way of Tehama St. would be used. Closure of the curb lane on Howard St. would displace two metered parking spaces; closure of the curb lane on Second St. would result in the displacement of one metered parking space and a Muni bus stop used by the 15-Third and 17X-Park Merced Express lines. Closure of the Tehama St. curb lane would displace two

parking spaces; use of half of the right-of-way of Tehama St. could disrupt use of the at-grade parking lot located behind the Marine Fireman's Union Building located at 240 Second St. and use of the parking area and loading facilities of the 55 Hawthorne St. building. Lane and sidewalk closures are subject to review and approval by the Department of Public Works.

Materials storage is proposed to be off-site, and would generate construction vehicle trips to the site; these trips are included in the above projections. Temporary parking demand from construction workers' vehicles, and impacts on local intersections from construction worker traffic, would occur in proportion to the number of construction workers who would use automobiles.

The impact of construction truck traffic would be a lessening of the capacities of access streets and haul routes because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Lane blockage on Howard and Second Sts. by queued trucks, if it were to occur, would reduce the capacity of these streets. The following Muni lines could be affected: 12-Folsom, 15-Third, 42-Downtown Loop. Blockage during times of peak traffic flow would have greater potential to create conflicts than during non-peak hours because of the greater peak-hour numbers of vehicles in adjacent lanes and vehicles (autos and buses) that would have to maneuver around the queued trucks. Any truck traffic from 7:00 a.m. to 9:00 a.m. or from 4:00 p.m. to 6:00 p.m. would coincide with peak-hour traffic, and would serve to worsen service levels. As noted above, truck traffic would be restricted to the hours of 9:00 a.m. to 3:30 p.m. which would avoid such peak-period effects.

Additional developments in the immediate project vicinity are in different stages of environmental review, project approval or construction: 49 Stevenson is currently under construction; 524 Howard and 101 Second St. are proposed in the project area. Some phases of other developments' construction could overlap with construction of the project. The 524 Howard and 101 Second Sts. developments are closest to the project site. In the event of combined construction periods of the proposed project and one or more of these other projects, construction truck traffic would be expected to increase and traffic congestion and transit delays could increase. Should one project be completed and a second begin soon after, construction truck traffic impacts would be prolonged.

NOTES - Transportation

/1/ San Francisco Department of City Planning, Transportation Guidelines for Environmental Impact Review: Transportation Impacts, September 1983. This document describes the procedure used to calculate travel demand from the project. Trip generation rates of 18.1 person trip-ends (pte) per 1,000 gross sq. ft. of office space and 150 pte per 1,000 gross sq. ft. of retail space were used to generate travel from the project. The two trip generation rates are for independent land uses. When used to generate travel from more than one land use on the same site the rates may overestimate total travel to the site since a portion of the travel from each of the land uses may occur between land uses on the site and not leave the site. Such trips are referred to as "linked trips." The calculations for this project have not been discounted to account for linked trips and thus present a "worst-case" scenario.

/2/ Deduction of existing travel demand is per the Transportation Guidelines.

/3/ The percentage of travel occurring in the peak period and the peak hour are from the Transportation Guidelines. Total travel during each of the periods has been adjusted to show only outbound (leaving the downtown area in the peak commute direction) travel. The outbound travel consists of all of the work-related travel and one-half of the other (non-work) travel.

/4/ San Francisco Department of City Planning, Office of Environmental Review, The Mission Bay Environmental Impact Report (86.505E), Vol. II, pp. VI.E.53-54. This document is an analysis of projected growth in Downtown & Vicinity to the year 2000. The transportation analysis in the EIR includes projections of future modal splits for work and other (non-work) travel for the p.m. peak period, peak hour, and daily time periods.

/5/ San Francisco Department of City Planning, January 1983, Transportation, an Element of the Master Plan.

/6/ This deficit-per-ride figure is based upon information provided in: Touche Ross & Co., Transit Impact Development Fee Cost Study, Fiscal Year 1981-82, July 1983, corrected September 9, 1983, and consultation with Bruce Bernhard, Chief Financial Analyst, San Francisco Municipal Railway, telephone communication, October 11, 1984, and March 20 and May 13, 1985. The calculation of the peak period marginal deficit (additional cost per ride minus additional revenue per ride) was done by ESA.

/7/ According to Muni, the appropriate technique for determining the costs to Muni of cumulative development is an average cost analysis which would include both capital and operating costs. Application of this technique, however, is limited because relevant capital cost data are not available from Muni. Further, capital costs are difficult to allocate on a person-trip basis as capital expenditures occur from time to time in large amounts, not necessarily annually. The established method of allocating capital costs is through depreciation, which is based on historical depreciation costs, not replacement costs. Such an estimate would be low in comparison with the costs of new capital improvements required for a single passenger trip. The use of existing capital cost data would underestimate future capital cost needs. Existing Muni accounting statistics do not enable future capital costs to be calculated on a per passenger trip basis (Bruce Bernhard, Muni Chief Financial Analyst, telephone communication, March 25, 1985).

/8/ This conclusion should be qualified because the Muni deficit-per-passenger-trip figure is based on 1981-82 data, and because the total project-generated deficit is calculated only for those riders who use Muni as their primary mode of transportation, excluding riders who would use a combination of transportation carriers, such as Muni and Caltrain. More recent data that

would allow a more precise estimate of costs are not available. The deficit due to the project would be: 376 peak-period trips per day x 252 working days per year x \$0.50 deficit = \$47,376. The cost deficit estimate is based on the assumption that essentially all vehicles are operating at capacity during peak periods and additional riders would require new vehicle trips. It was assumed that during off-peak periods, all vehicles operate with excess capacity, resulting in an average off-peak marginal cost of zero. These cost estimates are appropriate for project costs to Muni of a single office building. Assessments of costs that would result from cumulative development require the inclusion of additional cost factors and may be best projected using average cost data. Muni does not have data that would enable it to estimate the average cost per passenger trip. It is reasonable to conclude that average costs would be significantly higher than marginal costs.

/9/ Ward Belding, Supervisor, Office of Research, BART, telephone conversation, September 27, 1985. The \$1.20 average deficit per trip is based on all operating costs and revenues for the entire system and is not specific to San Francisco trips. Available data from BART do not enable peak and non-peak periods costs to be differentiated.

/10/ 860 BART trips per day x 252 days/year x \$1.20 = \$260,040.

/11/ Pedestrian counts were made by Environmental Science Associates, Inc. on Monday, September 29, 1986 from 12:00 p.m. to 1:00 p.m. and from 4:30 p.m. to 5:30 p.m.

/12/ San Francisco Department of City Planning, 1980, Center City Circulation and Goods Movement, Working Papers 1, 2 and 3, and Final Report.

/13/ Chuck Kaplan, Swinerton and Walberg, telephone conversation, November 11, 1986.

F. AIR QUALITY

CUMULATIVE CONTEXT

The Downtown Plan EIR analyzed the effects of employment growth in the C-3 District on regional air quality in the future (Downtown Plan EIR, pp. IV.I.1-19). Since that EIR was certified there have been changes in some air quality impact analysis methods and data. The changes are reflected in the Mission Bay and South of Market Plan EIRs. This material is incorporated by reference and summarized here. In general, the differences are new emission factors (these are revised periodically by the Bay Area Air Quality Management District), a new standard for determining possible significant air quality effects, and failure of the Bay Area to attain federal ozone and carbon monoxide standards. Other information in the Downtown Plan EIR remains applicable and is an appropriate basis for analyzing cumulative impacts of downtown growth, of which the proposed project is a part.

Motor vehicle exhaust emissions would be the primary source of air pollutants in the Downtown & Vicinity. These emissions would affect local and regional air quality. Ozone and carbon monoxide concentrations occasionally violate air quality standards at some locations in the Bay Area. Emissions of hydrocarbons and nitrogen dioxide, precursors of ozone, would contribute to regional ozone concentrations. Emissions would also add to local carbon monoxide concentrations at congested intersections in the vicinity.

The Bay Area Air Quality Management District considers projects that produce a net increase in vehicle emissions greater than one percent of countywide transportation emissions to have a potentially significant impact on air quality. By buildout in the year 2020, emissions of carbon monoxide, hydrocarbons, and nitrogen oxides from the Mission Bay project would exceed one percent of countywide transportation emissions under all Alternatives. (For buildout, year 2000 emission factors were used and emissions were compared with countywide transportation emissions projected for 2000, as emission factors and inventories beyond 2000 are not available.)

(For more detail on air pollutant emissions, see Mission Bay EIR, Vol. II, pp. VI.F.12-17.)

Motor vehicles are the major source of carbon monoxide, and concentrations can build up at congested intersections. Computer modeling of carbon monoxide concentrations at eight of the busiest intersections in the Downtown suggests that state and federal standards for eight-hour average concentrations (9 parts per million [ppm]) currently may be violated on occasion at the intersection of Sixth and Brannan Streets (13.4 ppm) and at the intersection of Third and Berry Streets (9.2 ppm). None of the eight intersections currently violate state or federal one-hour standards. Carbon monoxide concentrations are expected to improve throughout the region due primarily to better vehicle emission controls. Carbon monoxide concentrations at the eight intersections, even with Mission Bay and cumulative growth in traffic, are projected to decrease. No violations of state or federal carbon monoxide standards are expected in 2000 or at buildout of Mission Bay in 2020.

(For more detail on intersection carbon monoxide concentrations in the South of Market area, see Mission Bay EIR, Volume II, pp. VI.F.9-10 and 17-18, and Table VI.F.4, p. VI.F.19; South of Market EIR pp. 140-142 and Table 10, p. 143.)

The 1982 Bay Area Air Quality Management Plan established schedules and strategies to comply with federal ozone and carbon monoxide standards established under the Clean Air Act by December 31, 1987. The deadline has now passed, and the Bay Area remains a non-attainment area for ozone and carbon monoxide (standards are occasionally violated). Congress is considering additional amendments to the Clean Air Act to address those areas of the country that remain in non-attainment, and a new regional plan may be required. All Alternatives in the Mission Bay EIR would be consistent with 1982 Plan strategies to reduce motor vehicle trips by encouraging development in urban service areas, mixed-use and infill development, and rehabilitation and reuse of existing buildings. All Alternatives considered in the Mission Bay EIR represent more intensive use of the Project Area than assumed under the 1982 Plan, so Mission Bay would be inconsistent with the Plan's land use and population projections. The South of Market growth would not conflict with the 1982 Plan. (See Mission Bay EIR Volume II, pp. VI.F.19-20; South of Market EIR, pp. 137, 139, and 142-144.)

As noted in the Downtown Plan EIR, emissions associated with C-3 District development are not expected to increase ozone concentrations and thus would not conflict with the 1982 Plan objectives. (See Downtown Plan EIR, p. IV.I.11.) Downtown development, including Mission Bay, is not expected to conflict with 1982 Plan objectives regarding carbon monoxide. This is based on data collected since the Downtown Plan EIR was completed (see, e.g., 600 California Street Final EIR, pp. 128-129), and on the more recent air quality analysis in the Mission Bay EIR.

PROJECT EFFECTS

Upon completion, the project would affect air quality in two ways. Emissions would be generated by project-related traffic, and by combustion of natural gas for building space and water heating. Transportation sources would account for over 95% of project-related emissions.

Curbside CO concentrations at selected intersections that would be affected by project-generated traffic and by cumulative development traffic were projected for conservative conditions, and are compared with ambient standards in Table 7, below. In 2000, the average vehicle is expected to emit less carbon monoxide (CO) than in 1985 due to ongoing state and federal emissions controls.

TABLE 7: EXISTING AND PROJECTED CURBSIDE CARBON MONOXIDE CONCENTRATIONS AT SELECTED INTERSECTIONS

Intersection	Averaging Time	Concentrations (ppm)/a/ Mission Bay EIR 2000/b/	
		1985	
Fourth and Harrison/c/	1-hour	12.9	9.0
	8-hour	9.0	6.3
First and Harrison/b/	1-hour	11.6	7.7
	8-hour	8.1	5.4
Second and Howard/b/	1-hour	12.3	8.4
	8-hour	8.6	5.9

/a/ Calculations for all scenarios were made using a revised version of the Modified Linear Rollback (MLR) method described in the Plan EIR. Background concentrations were calculated to be 7.1 ppm for eight hours in 1985, and 5.0 ppm for eight hours in 2000. Underlined values are in violation of the state or federal CO standards. The one-hour state standard is 20 ppm, the one-hour federal standard is 35 ppm, and the eight hour state and federal standards are 9 ppm. Emission rates were derived from the California Air Resources Board EMFAC7D computer model, from the BAAQMD's Guidelines, revised April 1988.

/b/ Based on the growth forecast methodology contained in the Mission Bay EIR. The project would be contained within this forecast.

/c/ South of Market EIR, Table 10, p. 143.

SOURCE: Environmental Science Associates, Inc.

Currently (1985), the eight-hour CO concentration is estimated to equal the 9.0 ppm standard at the Fourth and Harrison intersection. CO concentrations are predicted to be less in 2000 than in 1984 and would not violate the standards at this intersection in this future scenario.

Table 8 below shows projected daily emissions of pollutants in the year 2000 from project-generated traffic and compares these emissions with transportation-related emissions generated in San Francisco County and the Bay Area in 2000. The project would contribute about 0.1% to the transportation-related emissions generated in San Francisco County in 2000.

TABLE 8: PROJECTED DAILY TRANSPORTATION RELATED POLLUTANT EMISSIONS

<u>Pollutant</u>	<u>Project 2000/a,b/</u>	<u>Emissions (tons per day)/a/</u>	
		<u>SF County 2000/c/</u>	<u>Bay Area 2000/c/</u>
Hydrocarbons	0.007	14	160
Nitrogen Oxides	0.01	22	270
Carbon Monoxide	0.15	120	1,400
PM-10	0.006	28	310
Sulfur Oxides/d/	0.001	28	83

/a/ Project emissions were calculated using BAAQMD EMFAC7D vehicle emission factors. Emissions of HC, NO_x, and CO include an assumed six minutes of idling time per vehicle trip. Emissions of particulates include dust disturbed from roadway surfaces.

/b/ Based upon a weighted daily average of 5,539 miles traveled.

/c/ San Francisco County and Bay Area emission correspond only to transportation-related emissions based on BAAQMD, Emissions Inventory Summary Report (August 1987) and a Year 2000 emissions inventory for the Bay Area provided by Tirlochan Mangat, Manager, Special Projects Section, BAAQMD.

/d/ Sulfur oxides and sulfur dioxides are assumed to be interchangeable.

SOURCE: Environmental Science Associates, Inc.; EIP Associates.

Emissions of particulates resulting from construction and from vehicle trips generated by the project and cumulative development would increase particulate concentrations, which could increase the frequency of particulate standard violations in San Francisco, with concomitant health effects and reduced visibility./1/

NOTE - Air Quality

/1/ State standards for particulate matter changed in 1983 and federal standards changed in 1987 to concentrate on fine particulate matter which has been demonstrated to have health implications when inhaled (PM-10). Only those particulates 10 microns or less in size are measured under the PM-10 standard. The BAAQMD (Thomas Perardi) has stated that TSP includes about 50-60% of particulates of 10 microns or less; thus, the TSP standards are generally equivalent to the PM-10 standards. BAAQMD is presently monitoring PM-10 at seven Bay Area monitoring stations, including the 16th and Arkansas station in San Francisco.

G. CONSTRUCTION NOISE

Ambient noise in the project vicinity is typical of noise levels in downtown San Francisco, which are dominated by vehicular traffic, including trucks, cars, Muni buses and emergency vehicles. Sidewalk noise measurements taken during the weekday p.m. peak commute time show average noise levels of about 70 dBA on Howard and 74 dBA on Second St./1,2/ The Downtown Plan EIR indicates day-night weekday noise levels (Ldn) of about 75 dBA, Ldn along Howard St. and 71 dBA along Second St. in the vicinity of the project./3,4/

Project construction would take place over about 22-months, and would increase noise levels in surrounding areas. Construction noise levels would fluctuate depending on construction phase, equipment type and duration of use, distance between noise source and listener, and presence or absence of barriers between noise source and listener. To estimate probable noise impacts, this analysis assumes typical equipment and construction techniques. Table 9 below shows typical exterior noise levels associated with the different phases of construction (see Appendix F, p. A-56, for a table of typical noise levels found in the everyday environment). Interior noise levels at 50 ft. from the noise source would be about 10 to 15 dBA less than those shown in Table 9. Closed windows would reduce noise levels by about 20 to 25 dBA below those shown in the table.

Construction noise is regulated by the San Francisco Noise Ordinance (Article 29 of the City Police Code). The ordinance requires that sound levels of construction equipment other than impact tools not exceed 80 dBA at a distance of 100 ft. from the source. Impact tools (jackhammers, piledrivers, impact wrenches) must have both intake and exhaust muffled to the satisfaction of the Director of Public Works. Section 2908 of the Ordinance prohibits construction work at night, from 8:00 p.m. to 7:00 a.m., if noise would exceed the ambient noise level by five dBA at the project property line, unless a special permit is authorized by the Director of Public Works.

TABLE 9: TYPICAL COMMERCIAL/INDUSTRIAL CONSTRUCTION NOISE LEVELS,
50 FEET FROM SOURCE

<u>Construction Phase</u>	<u>Duration of Phase/a/ (weeks)</u>	<u>Average Noise Level (dBA)</u>
Ground clearing	8	84
Excavation	22	89
Foundations/b/	22	78
Erection	15	85
Exterior Finishing	30	89

/a/ Chuck Kaplan, Swinerton and Walberg, telephone conversation, November 20, 1986 and Gary Green, Supulveda Properties, Project Manager, undated memorandum. Excavation and foundation phases of construction would overlap.

/b/ Time includes seven weeks of piledriving; noise level is for activities other than piledriving. Noise levels during piledriving could reach 105 dBA at 50 ft. from the source.

SOURCE: Bolt, Beranek and Newman, December 31, 1971, Noise from Construction Equipment and Home Appliances, Environmental Protection Agency

The project would require piledriving. Piledriving would occur intermittently over about seven weeks; hammering would occur during a five- to eight-minute period for each pile.

Conventional unmuffled and unshielded pile drivers emit noise levels of 100 to 110 dBA at a distance of 100 ft. each time the driver strikes the pile. The Department of Public Works allows piledriving operation under certain conditions, which may include specifying relatively quiet equipment, predrilling pile holes, and/or specifying hours of operation to reduce the number of people exposed to noise effects.

Land uses surrounding the project site include residential uses (St. Francis Place, one block to the southwest), commercial uses on ground floors, upper story offices, and parking lots. Thus, if piledriving were to occur during the evening or nighttime hours, residents of St. Francis Place would be affected. If piledriving were to occur during daytime hours, employees and other occupants of the adjacent commercial and office uses would be affected. Some commercial and office spaces are vacant. In the William Volker Building (631 Howard St.) immediately

adjacent to the site on the west, noise levels during piledriving could reach 105 dBA with windows open and 90 dBA with windows closed. The Marine Fireman's Union Hall located across Tehama St., approximately 50 ft. from the projects' southern boundary would experience noise levels of about 85 dBA during piledriving, with windows closed and about 100 dBA with windows open. Commercial uses across Howard St., approximately 100 ft. from the projects' northern boundary would experience noise levels of about 79 dBA with windows closed and 94 dBA with windows open during piledriving. This would result in occupants having to shout to communicate and would make telephone conversations difficult. Occupants could also experience the other effects described in this paragraph. These noise levels would require windows to be closed and would normally require noise barriers to be erected between the construction noise source and the receptor. Residential uses (St. Francis Place) one block (about 100 ft.) southwest of the site would experience noise levels of approximately 60 dBA with windows closed and 75 dBA with windows open during piledriving. This would result in occupants having to close windows in order to communicate, concentrate or rest. Noise barriers would normally be required between the construction site and the residential uses, in order that interior noise levels at these residences do not exceed a maximum of 45 dBA during construction activities (including piledriving) with windows closed. The project sponsor would require that the construction contractor limit pile driving activity to result in the least disturbance to neighboring uses, and would consult with the Public Works Department to determine the least disruptive time for pile driving. Pile holes would be predrilled which would reduce the duration of pounding for each pile. Measures included as part of the project to reduce construction noise and vibrations are on pp. 125 to 126.

Vibrations from the impact during piledriving would be felt in adjacent and nearby buildings. These vibrations have been found to be more disturbing to some people than high noise levels. General stress reaction has been observed in humans exposed to brief sounds of 75 dBA./5/ Noise at levels greater than 60 dBA can interfere with normal speech and concentration, noise levels greater than 70 dBA would require workers to close windows or shout to communicate. At noise levels of 85 dBA, normal conversation is extremely difficult, and sleep or rest virtually impossible. Intermittent noises, such as piledriving noise, reduce perception of control over the environment. This perceived loss of control frequently results in a depressed mood and

depressed motivation. It has also been shown that high noise levels can lead to elevated blood pressure./6/ Repeated impulse and intermittent sounds of high level appear more likely to disrupt performance than continuous or steady sounds of comparable level./7/

The U.S. Environmental Protection Agency (EPA) has determined that noise levels of 70 dBA, L_{eq} over a 24-hour day, assuming a 40-year exposure period, are the maximum level at which conservation of hearing is ensured for virtually all of the population./8,9/ On an equal energy basis, assuming that pile driving would occur for no more than eight hours per day over a period of less than three months, the maximum noise level that would ensure conservation of hearing would be 96 dBA, L_{eq} . This noise level would be six dBA greater than the maximum noise levels expected during pile driving at land uses adjacent to the project site, with windows closed. No criteria have been established for non-auditory, psychological effects, such as elevated blood pressure due to exposure to high noise levels. However, studies suggest that such effects can occur at noise levels below criteria thresholds for permanent hearing loss./10/ Thus, while occupants of buildings adjacent to the project site would not have hearing loss, they may experience non-auditory psychological effects.

Noise generated during piledriving could be reduced by erecting barriers around the project site. Barriers may include such items as berms, walls, etc., that would affect sound propagation by interrupting it and creating an "acoustic shadow zone." The more solid, high and wide a noise barrier were, the more effectively it would attenuate noise. A wall may provide maximum noise reductions up to 20 dBA, while a berm may reduce noise levels a maximum of 23 dBA./11/

Additional developments in the immediate project vicinity are in different stages of environmental review, project approval or construction: 49 Stevenson is currently under construction; 524 Howard and 101 Second St. are planned in the project area. Should any of these projects' construction schedules coincide with that of the proposed project, noise levels would be expected to increase by two to five dBA. This increase would be audible (depending on the loudness of the activity) and would probably be annoying, since noise from construction of one project would be annoying to the nearest receptors (those within 100 ft.). Should one project be completed and a second begin soon after, noise impacts would be prolonged.

In summary, during the majority of construction activity, noise levels would be expected to be above existing levels in the area. There would be times, particularly during the operation of piledrivers or impact wrenches, when noise would interfere with indoor activities in nearby offices and retail stores.

NOTES - Construction Noise

/1/ Noise measurements were taken on Tuesday, September 25, 1986 between 4:30 p.m. to 5:30 p.m., with a Metrosonics db-306A Metrologger with calibration prior to each measurement by ESA. Measurement locations were on the sidewalk on the eastern side of Second St. near the intersection of Second and Howard Sts. and on the southern side of Howard St. mid-block between Second and New Montgomery Sts.

/2/ A decibel (db) is a logarithmic unit of sound energy intensity. Sound waves, traveling outward from a source, exert a force known as sound pressure level (commonly called "sound level"), measured in decibels. A dBA is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels.

/3/ Ldn, the day-night average noise level measurement, is based on human reaction to cumulative noise exposure over a 24-hour period, which takes into account the greater annoyance of nighttime noises. Noise between 10:00 p.m. and 7:00 a.m. is weighted 10 dBA higher than daytime noise.

/4/ Department of City Planning, Downtown Plan Environmental Impact Report (EIR), EE81.3, certified October 18, 1984, Volume 1, pp. IV.J.1-19, particularly Table IV.J.2, pp. IV.J.9-10.

/5/ The Central Institute for the Deaf, Effects of Noise on People, U.S. EPA, 1971.

/6/ Sheldon Cohen, et al., "Cardiovascular and Behavioral Effects of Community Noise," American Scientist, Volume 69, October 1981.

/7/ National Institute for Occupational Safety and Health, Occupational Exposure to Noise, U.S. Department of Health, Education and Welfare, 1972.

/8/ U.S. Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974.

/9/ L_{eq} is the equivalent steady-state would level which in a stated period of time would contain the same acoustic energy as the time-varying sound level during the same time period.

/10/ U.S. Environmental Protection Agency, Noise Effects Handbook, July 1981.

/11/ U.S. Department of Transportation, Federal Highway Administration, Highway Noise, December 1978.

H. SEISMICITY

The Downtown Plan EIR includes information on Seismic Safety issues in the C-3 District of downtown. That information remains current. The South of Market Plan EIR provides similar information for that area, as does the Mission Bay EIR for its project area. These EIRs do not provide any new data about seismic issues that establish a need for revisions in the Downtown Plan EIR information or conclusions.

In summary, the Downtown & Vicinity, like other parts of San Francisco and the Bay Area, is subject to potentially large earthquakes from the San Andreas and Hayward faults. Relatively more of the land in Downtown & Vicinity is subject to violent groundshaking intensity than the rest of the land in Downtown & Vicinity is subject to violent groundshaking intensity than the rest of the City because the eastern edge of the area, including nearly all of Mission Bay, is built on filled land. Employment growth, such as that expected for the proposed new building, would result in large numbers of persons being exposed in the future to earthquake hazards if an event occurred during the day. New buildings are subject to more stringent building and structural standards than are older buildings. Therefore, persons working (or residing) in buildings such as the proposed project would be relatively safer than those in some older buildings. However, glass, and in some cases, building cladding, is expected to endanger those on the streets and sidewalks. The bridges leading to/from San Francisco are expected to be closed for over three days due to damaged access ramps. The same would be true of the freeways heading south to the Peninsula. Muni and Caltrain would be out of service for some time, and power outages would occur for at least one or two days. (See Downtown Plan EIR pp. IV.K.1-17a; Mission Bay EIR, Vol. II, pp. VI.K.11-15 and 33-43; South of Market EIR, pp. 154-174.

I. POPULATION AND EMPLOYMENT

CITY AND REGIONAL POPULATION AND EMPLOYMENT

Housing Demand and Population Growth

The Mission Bay and South of Market Plan EIRs discuss residence patterns in a City-wide and regional context, in relation to housing demand from growth of employment in the Greater

Downtown and Mission Bay. San Francisco employment growth will contribute to housing demand throughout the region, as not all San Francisco workers will live in the City. If housing is built in the Mission Bay and South of Market areas, more City workers could live in the City; San Francisco would contribute less to the regional housing market.

Regardless of the type of development in Mission Bay and in South of Market, the importance of San Francisco employment as a factor affecting regional housing demand will decline over time because more housing will be added in the City relative to job growth, compared to the situation in the past. As housing and the labor force continue to grow more rapidly outside San Francisco, people working in San Francisco will represent the same or a smaller percentage of the employed people living elsewhere in the region. San Francisco workers will require about the same share of the region's housing in the future as they did in the early 1980's. San Francisco's effects on the regional housing market will vary in the future. City workers could become more important to the housing market in some close-in communities in western parts of the East Bay and east of the hills along BART corridors, in northern San Mateo County and parts of Marin.

About half of the people working in Greater Downtown San Francisco would live in the City in 2000 and 2020. The rest would live in communities throughout the rest of the region: about 30% in the East Bay, 13% in the Peninsula and in the South Bay and about 8% in the North Bay. Greater Downtown workers living in the City would represent about 57% of the City's employed residents. People working downtown would represent a considerably smaller proportion (about 4-9%) of the employed residents of other Bay Area communities. (See Mission Bay EIR, Vol. II, pp. VI.C.56-61 and 92-97; South of Market EIR pp. 66-67.)

Employment Growth

Employment patterns in the City and the region in the future, particularly in the Greater Downtown, depend somewhat on the development plan chosen and built in the Mission Bay area. The amount of employment growth forecast in the Bay Region would not change, but the location of jobs would be different. South of Market area employment growth is forecast to be relatively small compared to the rest of downtown and would have little influence on growth patterns. This information, from the Mission Bay and South of Market Plan EIRs, is summarized below.

Mission Bay Alternative A, with a combination of residential and commercial uses, would provide about 25,000 job opportunities. Citywide employment, including South of Market and the rest of the City, would grow by about 210,000 jobs between 1985 and 2020 under this scenario. Mission Bay Alternative B includes predominantly residential and open space uses and would provide about 6,000 jobs; citywide employment would grow by about 200,000 jobs and more of this growth would occur in the downtown and in the rest of the City between 1985 and 2020. Mission Bay Alternative N, with predominantly commercial and industrial development and no new housing, would contribute to citywide employment growth of about 207,000 jobs during the same time frame. The South of Market area would contribute about 24,000 jobs to these totals.

The C-3 District would contribute different amounts to the Citywide employment totals, depending on Mission Bay development at buildout (2020) about 360,800 jobs if Mission Bay Alternative A were the buildout scenario; about 362,200 jobs if Alternative B were the Mission Bay development picture; and about 362,200 jobs if the Mission Bay area were developed under present zoning as in Alternative N.

Forecasts of employment in the year 2000 in the Downtown & Vicinity and in the City as a whole have been revised since the Downtown Plan EIR was prepared. The Mission Bay and South of Market Plan EIRs provide these updated forecasts. In summary, the C-3 District employment growth would be about 69,000 jobs between 1985 and 2000, compared to a forecast of about 91,000 new jobs between 1984 and 2000 shown in the Downtown Plan EIR. However, it is more appropriate to compare forecast of change from 1981 to 2000, as 1981 base data are the same for both the Downtown Plan EIR and the two more recent EIRs. For that period, the Downtown Plan EIR shows growth of about 106,000 jobs in the C-3 District, while the new forecasts show growth of about 64,000 jobs. (See Mission Bay EIR, Vol. II, pp. VI.B.53-79, and Vol. III, p. XIV.B.24-26; South of Market EIR, Appendix B, pp. B.10 to B.14; and Downtown Plan EIR pp. IV.C.29-61.)

Employment Densities

Employment densities -- the average number of square feet per person in a building -- were recalculated based on the revised space and employment forecasts for the larger area in the Downtown & Vicinity prepared for the Mission Bay EIR. The relative reduction in growth compared to the Downtown Plan EIR forecasts results in a reduction in density, or an increase in

the average square feet per person in office uses from 268 sq. ft. to about 294 sq. ft. in the year 2000. (See especially, Mission Bay EIR Vol. II, pp. VI.B.53-56 and VI.B.60-62.)

Use of this density for analysis of individual office projects would reduce the number of persons in that building compared to that shown by use of the Downtown Plan EIR density factor, reducing proportionally that building's contribution to those cumulative impacts caused by employment growth in downtown. The project-related employment was not recalculated because the difference in any one building is relatively small (10-12% less employment), because the difference is nearly unmeasurable in relation to cumulative impacts, and because use of the smaller square footage (higher density) therefore provides a more conservative estimate of the project's impacts.

PROJECT IMPACTS

Removal of the 108-space parking lot would result in the displacement of one employee. Demolition of existing buildings for construction of the new project would not result in the displacement from this site of the existing businesses or employees. W. A. Palmer Films previously occupied the two existing buildings on the site (totaling 22,000 gsf; of which about 17,000 gsf was light industrial space and about 5,000 gsf was office space). W. A. Palmer Films employed 15 full-time and two part-time people in December 1984, the last month of operation before their company moved to Belmont, representing about 0.26% or less of the C-3 total employment in 2000 and 2020. The impact would be about 0.5% of citywide growth between 1985 and 2000.

At full operation, the project would accommodate about 940 workers on the site, consisting of about 885 office workers, 30 retail workers, and 25 building maintenance/security workers.^{1/} The additional space represented by the project would accommodate about 920 additional employees in the C-3 District, representing about 0.26% or less of the C-3 total employment in 2000 and 2020. The impact would be about 0.5% of citywide growth between 1985 and 2000.

The project would accommodate growth of office and retail employment in the C-3 District. It is expected that office businesses providing management, technical, and professional services would occupy the project office space.¹ Over time, the project is expected to be characteristic of

all C-3 District office buildings occupied by a mix of corporate and business service firms. Therefore, average overall density factors for the C-3 District (gross sq. ft. of space per employee) are used to estimate the employment characteristics of the project, as opposed to using any particular tenants which may or may not remain in the building over the long term.

About 2,045 additional jobs in the Bay Area would result from the employment multiplier effect of project operation./2/ Construction of the new project would require about 160 person-years of construction labor./3/ Construction labor for the project would represent about 0.2% of the total person-years of construction labor forecast for the C-3 District from 1984 through 2000. About 105 additional person-years of employment would be generated in the Bay Area, as a result of the multiplier effect of project construction./2/

NOTES - Population and Employment

/1/ Employment is calculated from the estimates of gross sq. ft. of building space from project description. Based on C-3 District employment density factors from the San Francisco Department of City Planning, Downtown Plan EIR, EE81.3, certified October 18, 1984 (268 sq. ft. per office employee, incorporating an average five percent vacancy factor; 350 sq. ft. per retail employee; 12,500 sq. ft. per maintenance/security/parking employee).

/2/ Indirect employment projections are based on A 1980 Hybrid Input-Output Model for the San Francisco Bay Region, Association of Bay Area Governments, April 1984. A multiplier of 2.25 was used for office jobs, 0.71 for retail jobs and 1.33 for maintenance jobs. The multipliers used are averages of the Type I and Type II employment multipliers contained in this model.

/3/ Charles Kaplan, Swinerton & Walberg letter, dated September 26, 1986.

J. GROWTH INDUCEMENT

The project would include about 236,750 gross sq. ft. of office space (a net increase of about 231,750 gross sq. ft.) and about 9,460 sq. ft. of retail space (there was previously no retail space on the site). The project would result in the loss of about 17,000 gsf of light industrial space. Employment at the site would increase to about 940 people (there is currently one employee on the site). Occupants of the proposed project could include tenants expanding or relocating from other San Francisco locations, tenants relocating from outside San Francisco, and firms new to the Bay Area. The increase in employment at the project site, therefore, would not necessarily

represent employment that is new to San Francisco. If the project were fully leased, however, and the office space of the project did not create permanent vacancies in other San Francisco office buildings, total employment in San Francisco could increase by about 940 jobs due to the project. Approximately 2,045 additional jobs would be supported indirectly in San Francisco through the multiplier effect.

If marketed successfully, the project, together with other planned office development, could have growth-inducing effects by demonstrating a market for office space in this area. This could thereby encourage similar development on lots (including smaller lots assembled for development) currently occupied by low- or mid-rise buildings containing business support services. Such a demand would reflect the trend of growth in service sector and headquarters office activities and employment in San Francisco. Increases in downtown office space and employment would contribute to continued growth of local and regional markets for housing, goods, and services. These effects would be less extensive were the vacancy rate for office space to continue to rise. Should this occur, projected increases in downtown employment would be less and the growth in demand for goods, services and housing would be lower.

It is expected that some downtown workers, including some in the project, would want to live in San Francisco. Employment growth, however, would not be reflected directly in increases in demand for housing and city services to residents, as some new jobs would be held by individuals who already live and work in the City; who live in the City but previously either did not work, or worked outside the City; who live in surrounding communities; or by those unable to afford or locate housing in the City. New downtown workers would also increase demand for housing in other parts of the Bay Area.

Any net increase in employment downtown would increase the demand for retail goods and services in the area. The project would intensify this demand by increasing the amount of employment on the site, thereby increasing demand for goods and services in the vicinity. Increases in employment downtown would also increase demand for business services, to the extent that the expanded space would not be occupied by firms providing those services. In response, demand would increase for existing space and possibly for further new development.

The project would be built in a developed urban area, and no expansion to the municipal infrastructure not already under consideration would be required to accommodate new development and increased employment due to, or induced by, the project.

V. MITIGATION MEASURES PROPOSED TO MINIMIZE THE POTENTIAL ADVERSE IMPACTS OF THE PROJECT

In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the proposed project. Some of these measures have been, or would be, adopted by the project sponsor or project architects and contractors and thus are proposed; some are under consideration and some have been rejected. Implementation of some may be the responsibility of public agencies. Measures under consideration or measures rejected by the sponsor may be required by the City Planning Commission as conditions of project approval, if the project were to be approved.

Each mitigation measure and its status are discussed below. Where a measure has not been included in the project, the reasons for this are discussed.

Mitigation measures below preceded by an asterisk (*) are from the Initial Study (see Appendix A, p. A-2).

VISUAL QUALITY

MEASURE PROPOSED AS PART OF THE PROJECT

- *- In order to reduce obtrusive light or glare, the project sponsor would use no mirrored glass on the building.

CULTURAL RESOURCES

MEASURES PROPOSED AS PART OF THE PROJECT

- The sponsor would retain the services of an archaeologist. The Environmental Review Officer (ERO) in consultation with the President of the Landmarks Preservation Advisory Board (LPAB) and the archaeologist would determine whether the archaeologist should instruct all excavation and foundation crews on the project site of the potential for discovery of cultural and historic artifacts, and the procedures to be followed if such artifacts are uncovered.

Given the possibility of encountering the remains of cultural or historic artifacts within the project site, prior to the commencement of foundation excavations the project sponsor would undertake a program of archaeological testing. This would consist of observation and monitoring by a qualified historical archaeologist of site clearance of at least any materials below existing grade level, and either the placement of a series of mechanical, exploratory borings or of other similar on-site testing methods. The archaeologist would supervise the testing at the site to determine the probability of finding cultural and historical remains. At the completion of the archaeological testing program, the archaeologist would submit a written report to the ERO, with a copy to the project sponsor, which describes the findings, assesses their significance and proposes appropriate recommendations for any additional procedures necessary for the mitigation of adverse impacts to cultural resources determined to be significant.

An historical archaeologist would be present during site excavation and would record observations in a permanent log. The ERO would also require cooperation of the project sponsor in assisting such further investigations on site as may be appropriate prior to or during project excavation, even if this results in a delay in excavation activities.

In addition, a program of on-site construction monitoring by a qualified historical archaeologist, designed to allow for the recovery of a representative sample of the cultural materials existing on the site, would be implemented by the project sponsor. This monitoring and recovery program would result in a written report to be submitted to the ERO, with a copy to the project sponsor.

- Should cultural or historic artifacts be found following commencement of excavation activities, the archaeologist would assess the significance of the find, and immediately report to the ERO and the President of the LPAB. Upon receiving the advice of the consultants and the LPAB, the ERO would recommend specific mitigation measures, if necessary. Excavation or construction activities following the preconstruction archaeological testing program which might damage the discovered cultural resources would be suspended for a maximum of four weeks (cumulatively for all instances that the ERO has required a delay in excavation or construction) to permit inspection, recommendation and retrieval, if appropriate.

- Following site clearance, an appropriate security program would be implemented to prevent looting. Any discovered cultural artifacts assessed as significant by the archaeologist upon concurrence by the ERO and the President of the LPAB would be placed in a repository designated for such materials. Copies of the reports prepared according to these mitigation measures would be sent to the California Archaeological Site Survey Office at Sonoma State University.

TRANSPORTATION

MEASURES PROPOSED AS PART OF THE PROJECT

- During the construction period, construction truck movement would be permitted only between 9 a.m. and 3:30 p.m. to minimize peak-hour traffic conflicts and to accommodate queueing of Muni buses prior to the peak hours. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Bureau of Engineering of the Department of Public Works, the Fire Department, Muni and the Department of City Planning to determine feasible traffic mitigation measures to reduce traffic congestion during construction of this project and other nearby projects. To minimize cumulative traffic impacts due to lane closures during construction, the project sponsor would coordinate with construction contractors for any concurrent nearby projects that are planned for construction or which later become known.
- The project sponsor would contribute funds for maintaining and augmenting transportation services in an amount proportionate to the demand created by the project, as provided by the Board of Supervisors Ordinance Number 224-81.
- Secure, safe bicycle storage facilities would be provided relative to the demand generated by project commuters and short-term visitors.
- The project sponsor would, in consultation with the Municipal Railway, install eyebolts or make provisions for direct attachment of eyebolts for Muni trolley wires on the proposed building wherever necessary or agree to waive the right to refuse the attachment of eyebolts to the proposed building if such attachment is done at City expense.

- The project sponsor shall: 1) participate with other project sponsors and/or the San Francisco Parking Authority in undertaking studies of the feasibility of constructing an intercept commuter parking facility in a location appropriate for such facility to meet the unmet demand for parking for those trips generated by the project which cannot reasonably be made by transit, and 2) participate with other project sponsors and/or the Municipal Railway in studies of the feasibility of the establishment of a shuttle system serving the project site and the parking facility.
- The placement of paving, landscaping or structures in the sidewalk area (subject to City approval) would be done in such a way as to minimize interference with pedestrian traffic.
- As required by Section 163 of the City Planning Code, a member of the building management staff would be designated as a transportation broker to coordinate measures that are part of a transportation management program, such as: encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak-period congestion by a planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART, Muni, and other carriers' passes to employees; and encouraging employee carpool and vanpool systems in cooperation with RIDES for Bay Area commuters by providing a central clearinghouse for carpool and vanpool information.
- Off-street parking spaces would be controlled to assure priority for vehicles driven by the physically handicapped, vehicles using spaces for short-term rather than all-day parking, and vanpool and carpool vehicles. All remaining parking spaces would be subject to rates that encourage short-term use of said spaces and discourage all-day parking; the parking rate would be reviewed and approved by the Department of City Planning, or alternatively, the project sponsor would agree to be bound by a formula, to be developed by the Department of City Planning, which structures rates so as to favor short-term parking.
- Building directories and signs for the service elevators would be placed in the loading area.
- The project would include access to and from on-site off-street parking and off-street loading areas on Tehama St. in order to avoid increased traffic congestion on Second and Howard Sts.

MEASURES UNDER CONSIDERATION BY PROJECT SPONSOR

- To meet the short-term parking deficit identified in the EIR, the project sponsor shall (a) provide for the conversion of existing long-term parking spaces in the core to short-term use and/or (b) provide the short-term parking spaces in the short-term parking belt as defined in the Master Plan, either independently or in association with other project sponsors and/or the San Francisco Parking Authority, to meet the demand for those short-term trips which cannot reasonably be accommodated by public transit.
- The parking driveway could include warning devices (lighted signs and noise-emitting devices) to alert pedestrians to vehicles exiting the structure. The sponsor will make a decision on this measure during final design stage based on design criteria and cost.
- While subsurface sidewalk vaults are discouraged, should they be needed, the project sponsor would design subsurface sidewalk vaults to allow for possible future widening of adjacent streets. Vault design shall be of sufficient strength to carry maximum vehicular live and dynamic loads. Design of the vault area to accommodate street trees could also be made, subject to Department of Public Works approval. In addition, should vaults exist or be installed as part of the project, the project sponsor would accommodate and pay for the installation of all subsurface footings, supports and foundations as may be required for future public improvements such as street lights, street trees, trolley wire poles, signs, benches, transit shelters, etc. within project vault areas. Placement of such improvements is entirely within the discretion of the City.
- When the building is 80% occupied, the project sponsor could conduct a survey, in accordance with methodology approved by the Department of City Planning, to assess actual trip generation patterns of project occupants and actual pick-up and drop-off areas for carpools and vanpools. The project sponsor could make this survey available to the Department of City Planning. This measure would provide needed information to aid in transportation planning in the City.

MEASURES THAT COULD BE IMPLEMENTED BY PUBLIC AGENCIES

- Pacific Gas and Electric Company could coordinate work schedules with other utilities requiring trenching, so that street disruption would take place during weekends and

off-peak hours. This should be done through the San Francisco Committee for Utility Liaison on Construction and Other Projects (CULCOP). In-street utilities should be installed at the same time as the street is opened for construction of the project to minimize street disruption.

- The City could act to implement the transportation mitigations described in Vol. 1, Section V.E., Mitigation, pp. V.E.4-28, in the Downtown Plan EIR; and in the Mission Bay EIR Vol. II, Section VI.E, Mitigation, pp. VI.E.214-VI.E.217 for the year 2000 and VI.E.224-VI.E.231 for 2020, and in the South of Market EIR, pp. 189-194. The measures for the year 2000 are similar or identical to those in the Downtown Plan and include, in summary: measures to construct and maintain rail rapid transit lines from downtown San Francisco to suburban corridors and major non-downtown centers in San Francisco; measures to fund Vehicle Acquisition Plans for San Francisco and regional transit agencies to expand existing non-rail transit service; provide exclusive transit lanes on City streets and on freeways; reduce incentives to drive by reducing automobile capacities or bridges and highways in certain circumstances and by discouraging long-term parking; measures to encourage carpools, vanpools, and bicycle use; and measures to improve pedestrian circulation within downtown San Francisco.

Many of the measures have been implemented since the Downtown Plan EIR was certified, such as BART's Oakland WYE track, expansion of the Sutter/Stockton parking garage, requiring transportation brokers in major new downtown buildings, and designation of Rincon Hill as a high density housing area near downtown in the Rincon Hill Plan. Others are under study and a few have changed. Studies are continuing of extending CalTrain downtown, extending BART in the East Bay, building a new Muni Metro turnaround at the foot of Market Street (a DEIS was published by UMTA in summer 1988), and constructing HOV lanes on I-80 near the Bay Bridge; changed measures include the voter disapproval of removing the Embarcadero Freeway. The majority of these measures are relevant on an area-wide, city-wide or regional basis.

The South of Market EIR includes additional measures related to South of Market such as providing transportation brokerage services for new South of Market projects, as well as relevant measures for cumulative impacts similar to those in the Downtown Plan EIR.

Three types of mitigation measures related to cumulative impacts are described in the Mission Bay Eransportation system capacity improvements which are reasonably sure to happen by 2000 and are assumed in the impacts analysis; measures to mitigate regional impacts by 2000; and measures to mitigate regional impacts by 2020. (See Mission Bay EIR, Vol. II, pp. VI.E.198-231.)

Measures are proposed in the Mission Bay EIR to mitigate the impacts of regional growth in 2020. Those measures include expanding transbay transportation capacity to the East Bay by constructing a new bridge between Alameda and San Mateo Counties, widening the San Francisco-Oakland Bay Bridge or Hayward-San Mateo Bridge, or providing a new transbay tunnel or an enhanced train-control computer system for BART, expanded transbay capacity to the North Bay through provision of bus lanes or light-rail service on a second deck of the Golden Gate Bridge, and expanded transit opportunities to the South Bay via a CalTrain extension to downtown San Francisco or BART and Muni extensions to the Peninsula.

Some of the implementing actions would require approval by decision-makers outside the City and County of San Francisco; many of the measures would require action by City agencies other than the City Planning Commission, such as the San Francisco Public Utilities Commission and/or Board of Supervisors. All except such things as providing transportation brokers would require funding from or approval by MTC. These measures are system-wide measures that must be implemented by public agencies. Other than project-specific measures such as the relevant transportation mitigation measures described above as part of the project or such measures as the Transit Impact Development Fee assessment required by San Francisco ordinance 224-81 which contribute indirectly to implementation of these system-wide measures, it is not appropriate to impose mitigation at system-wide levels on individual projects.

AIR QUALITY

MEASURES PROPOSED AS PART OF THE PROJECT

- *- The project sponsor would require the general contractor to sprinkle demolition sites with water continually during demolition activity, sprinkle unpaved construction areas with water at least twice per day to reduce dust generation by about 50%, cover stockpiles of

soil, sand, and other such materials, cover trucks hauling debris, soils, sand, or other such material, and sweep streets surrounding demolition and construction sites at least once per day to reduce particulates emissions. The project sponsor would require the project contractor to maintain and operate construction equipment so as to minimize exhaust emissions of particulates and other pollutants by such means as a prohibition on idling of motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs (to reduce emissions) for equipment that would be in frequent use for much of a construction period.

- Measures identified to mitigate traffic impacts would also mitigate air quality impacts. Increasing roadway capacity (where feasible and cost effective), reducing vehicular traffic through increased ridesharing (carpool, vanpool, and transit), and implementing flexible and/or staggered work hours would reduce local and regional emissions of all pollutants.

NOISE

MEASURES PROPOSED AS PART OF THE PROJECT

- The construction contract would require that the project contractor muffle and shield intakes and exhausts, shroud or shield impact tools, and use electric-powered rather than diesel-powered construction equipment, as feasible, so that noise would not exceed limits stated in the City's Noise Ordinance (Article 29, San Francisco Administrative Code, 1972).
- The project sponsor would require the general contractor to construct barriers around the site, and around stationary equipment such as compressors, which would reduce construction noise by as much as five dBA, and to locate stationary equipment in pit areas or excavated areas, as these areas would serve as noise barriers.
- The project sponsor would require that the project contractor predrill holes (if feasible based on soils) for piles to the maximum feasible depth to minimize noise and vibration from pile driving. The actual pounding from pile driving would occur during a five- to eight-minute span per pile.

- The project sponsor would consult with the Department of Public Works to determine the time when pile driving would cause the least disturbance to neighboring uses. The project sponsor would require that the construction contractor limit pile driving activity to result in least disturbance. This could require a work permit from the Director of Public Works pursuant to San Francisco Noise Ordinance Section 2907(c), if pile driving during daytime hours is determined to be less disruptive to neighboring uses.
- *- As recommended by the Environmental Protection Element of the San Francisco Master Plan, an analysis of noise reduction measurements would be prepared by the project sponsor and recommended noise insulation features would be included as part of the proposed building. For example, such design features would include fixed windows and climate control.

ENERGY

MEASURES PROPOSED AS PART OF THE PROJECT

- *- A variable-air-volume air conditioning system would control the volume of conditioned air so that the building would maintain a comfortable temperature efficiently.
- *- Fluorescent lights with parabolic diffusers would be used to conserve energy and reduce glare. Return-air diffuser slots in light fixtures would reduce air conditioning loads by removing part of the heat generated by light fixtures. Whenever possible, office suites would be equipped with individualized light switches, and time clock operation to conserve electrical energy.
- *- Natural gas would be used for water heating.
- *- An economizer would be used for cooling whenever the outside air is below building temperature.
- *- A central programmable lighting control system for master on/off control of tenant area and garage lighting would be incorporated into the project.

- *- The perimeter tenant lighting fixtures would be separately controlled to reduce lighting load when natural daylight is available.
- *- A carbon monoxide monitoring system would control garage ventilation to avoid unnecessary operation of fans.

GEOLOGY/TOPOGRAPHY/HYDROLOGY

MEASURES PROPOSED AS PART OF THE PROJECT

- *- A detailed foundation and structural design study would be conducted for the building by a California-licensed structural engineer and a geotechnical consultant. The project sponsor would follow the recommendations of these studies during the final design, excavation of the site and construction of the project.
- *- If dewatering were necessary, any groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this is found necessary by the Industrial Waste Division of the Department of Public Works, to reduce the amount of sediment entering the storm drain/sewer lines.
- *- Should dewatering be necessary, the final soils report would address the potential settlement and subsidence impacts of this dewatering. Based upon this discussion, the soils report would contain a determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works would require that a Special Inspector (as defined in Article 3 of the Building Code) be retained by the project sponsor to perform this monitoring. Groundwater observation wells would be installed to monitor the level of the water table and other instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be used to halt this settlement. The project sponsor would delay construction if necessary. Cost for the survey and any necessary repairs to service under the street would be borne by the project sponsor.

- The final soils report would also recommend whether or not watering of piles of adjacent structures was necessary. If it were found to be necessary, the project sponsor would ensure that the general contractor complied.
- *- If dewatering is undertaken for the project, the groundwater level in the site vicinity should be monitored. If lowering of the groundwater table were to threaten wooden pile foundations, groundwater recharge would be used to stabilize the groundwater level.

WATER QUALITY

- *- See the second measure under Geology/Topography/Hydrology, above, for mitigation prepared to prevent sediment from entering storm sewers.

HAZARDS

MEASURES PROPOSED AS PART OF THE PROJECT

- *- An evacuation and emergency response plan would be developed by the project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services, to insure coordination between the City's emergency planning activities and the project's plan and to provide for building occupants in the event of an emergency. The project plan would be reviewed by the Office of Emergency Services and implemented by building management insofar as feasible before issuance by the Department of Public Works of final building permits.
- *- To expedite implementation of the City's emergency response plan, the project sponsor would prominently post information for building occupants concerning what to do in the event of a disaster.

HOUSING

MEASURES PROPOSED AS PART OF THE PROJECT

- *- The project sponsor would comply with the requirements of OAHPP; 89 housing units for the projects proposed 231,750 net new sq. ft. of office space.

VI. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

This chapter is subject to final determination by the City Planning Commission as part of its certification process for the EIR. Chapter VI of the Final EIR will be revised, if necessary, to reflect the findings of the Commission.

This chapter identifies significant impacts that could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the project, as described in Chapter V., Mitigation Measures, p. 118 to p. 128.

No project-specific significant impacts have been identified.

Cumulative development in downtown San Francisco would have a significant effect on the environment in that it would generate cumulative traffic increases as well as cumulative passenger loadings on Muni, BART and other regional transit carriers. These cumulative transportation impacts could cause violations to particulate standards in San Francisco with concomitant health effects and reduced visibility. The proposed project would contribute to these cumulative effects.

VII. ALTERNATIVES TO THE PROPOSED PROJECT

This chapter identifies alternatives to the proposed project, discusses environmental impacts associated with these alternatives, and gives the reasons the alternatives were rejected in favor of the project. Regardless of the sponsor's reasons for rejection, the City Planning Commission could approve an alternative instead of the proposed project if the Commission believed the alternative would be more appropriate for the site.

A. ALTERNATIVE A: NO PROJECT

This alternative would entail no change to the site. The proposed project would not be built. The two existing buildings on the site and the parking lot would be retained.

If the No-Project Alternative were implemented, none of the impacts associated with the project would occur. The environmental characteristics of this alternative would be generally as described in the Environmental Setting sections of this report (see Chapter III, Setting, pp. 25 to 47, for a discussion of existing conditions). Transportation and noise impacts associated with the demolition of the two on-site buildings and subsequent construction of the project would not occur. Transportation and air quality conditions (as described in Chapter IV, Impacts, pp. 80 to 106) as base conditions with cumulative development, but without the project, would continue to exist around the site. There would be no change in energy demand on the site. Employment on the site would not increase as it would with the project. Land uses, site views, shadows and winds would not change. This alternative would not contribute to cumulative impacts on transportation at local intersections or to additional air quality impacts. This alternative would not contribute to growth inducement in areas surrounding the project site. One building rated "C" by Heritage and one building rated "D" by Heritage and "0" in the DCP 1976 Architectural Survey would be preserved on the site. Both of the site buildings have spaces for small businesses. This alternative would preserve the option to develop a similar or different type of building on the site in the future.

This alternative was rejected by the project sponsor because it would not use the development potential of the site allowable under the Downtown Plan. In the sponsor's opinion,

this alternative would not further policies of the Downtown Plan concerning location of development, preservation of architecturally significant buildings and open space.

B. ALTERNATIVE B: NO TRANSFER OF DEVELOPMENT RIGHTS, 5.8:1 FAR

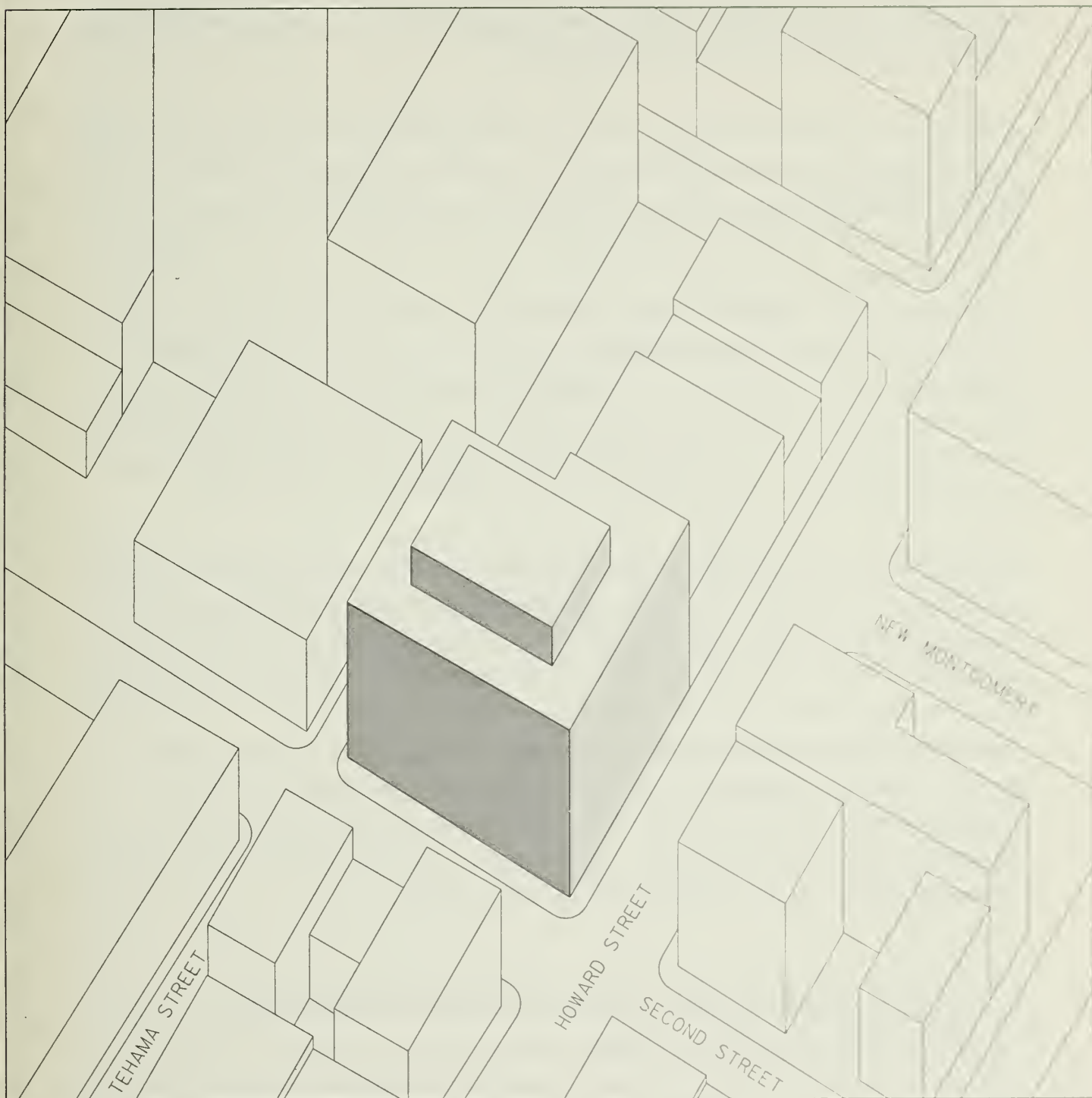
The project as proposed would include the transfer of about 93,150 gsf of development rights from as-yet unidentified sites. This alternative considers a building without TDR. The FAR would be 5.8:1, less than the basic allowable FAR (6:1) without TDR, compared to 9.9:1 FAR for the project.

Office space would be 139,500 sq. ft. compared to 236,750 sq. ft. with the project. The building would be seven stories tall (about 103 ft.) compared to 16-stories (about 225 ft.) for the project. Retail space would be as for the project. This alternative would have one basement with about 10,000 sq. ft. (excluding ramps) of parking and about 30 parking spaces compared to 16,510 sq. ft. and 70 spaces with the project.

The open space requirement for this alternative would be 2,980 sq. ft. which would be met in a similar manner as the project, except that no glass atrium feature would be included. This alternative would comply with all City Planning Code requirements.

This alternative would be a 103 ft.-tall box-shaped building with surface detailing and facade articulation. It would comply with all setback and bulk requirements (see Figure 25, p. 132); the project would require exceptions to bulk requirements in the upper tower. This alternative would be set back by about five ft. from the property line along Tehama St. It would be about 122 ft. shorter than the project, and therefore would be less visible in mid- and long-range views than the project. This alternative would not require the transfer of development rights and would therefore not provide for preservation of an architecturally or historically significant building, as would the project. As with the project, the two on-site buildings rated "C" and "D" by Heritage would be demolished.

Shadow from this alternative would be about 55% less than with the project. Wind speeds would increase along both Howard and Second Sts., especially at the Howard/Second intersection; winds would also increase at the end of Tehama St.; wind effects would be less



NOT TO SCALE

222 SECOND STREET

FIGURE 25
ALTERNATIVE B: CODE-CONFORMING WITH
NO TRANSFER OF DEVELOPMENT RIGHTS, 6:1 FAR

SOURCE: Gensler and Associates

than with the project. This alternative would not cause wind speeds to exceed the pedestrian comfort criterion, with the five-ft. building setback along Tehama St., at any of the 20 locations tested (compared to three locations with the project).

Travel demand, air quality and energy impacts associated with on-site uses would be about 39% less than those of the proposed project because of the smaller amount of office space than with the project. This alternative would have fewer parking spaces than with the project which would result in less traffic and fewer air quality effects at local intersections than with the project. Construction noise impacts would be of a shorter duration, as the construction period would be shorter. Any effects on cultural resources would be less with this alternative, as the depth of excavation would be less for one basement level compared to two basement levels with the project. This alternative would provide employment for about 565 employees, compared to about 940 employees with the project. It would generate a demand for about 52 new dwelling units in San Francisco, based on the OAHPP Formula, compared to 89 with the project. Growth-inducing impacts of this alternative would be similar to those for the project.

The project sponsor has rejected this alternative because, in the sponsor's opinion, it would not provide for the full use of the development potential permitted under the City Planning Code, would not provide for preservation of architecturally significant buildings and would not meet stated policies of the Downtown Plan to redirect growth to the South of Market, and to situate major new development in close proximity to transit nodes. The Downtown Plan designates the area, south of the Transbay Terminal, for the highest development potential in the South of Market C-3 districts. The sponsor believes that if sites are not developed to their fullest potential in the area specifically identified in the Downtown Plan for increased growth, development pressures would continue in areas outside of where the Downtown Plan attempts to redirect growth, such as the North of Market or Chinatown areas.

C. ALTERNATIVE C: MAXIMUM FLOOR AREA WITH TRANSFER OF DEVELOPMENT RIGHTS, 18:1 FAR

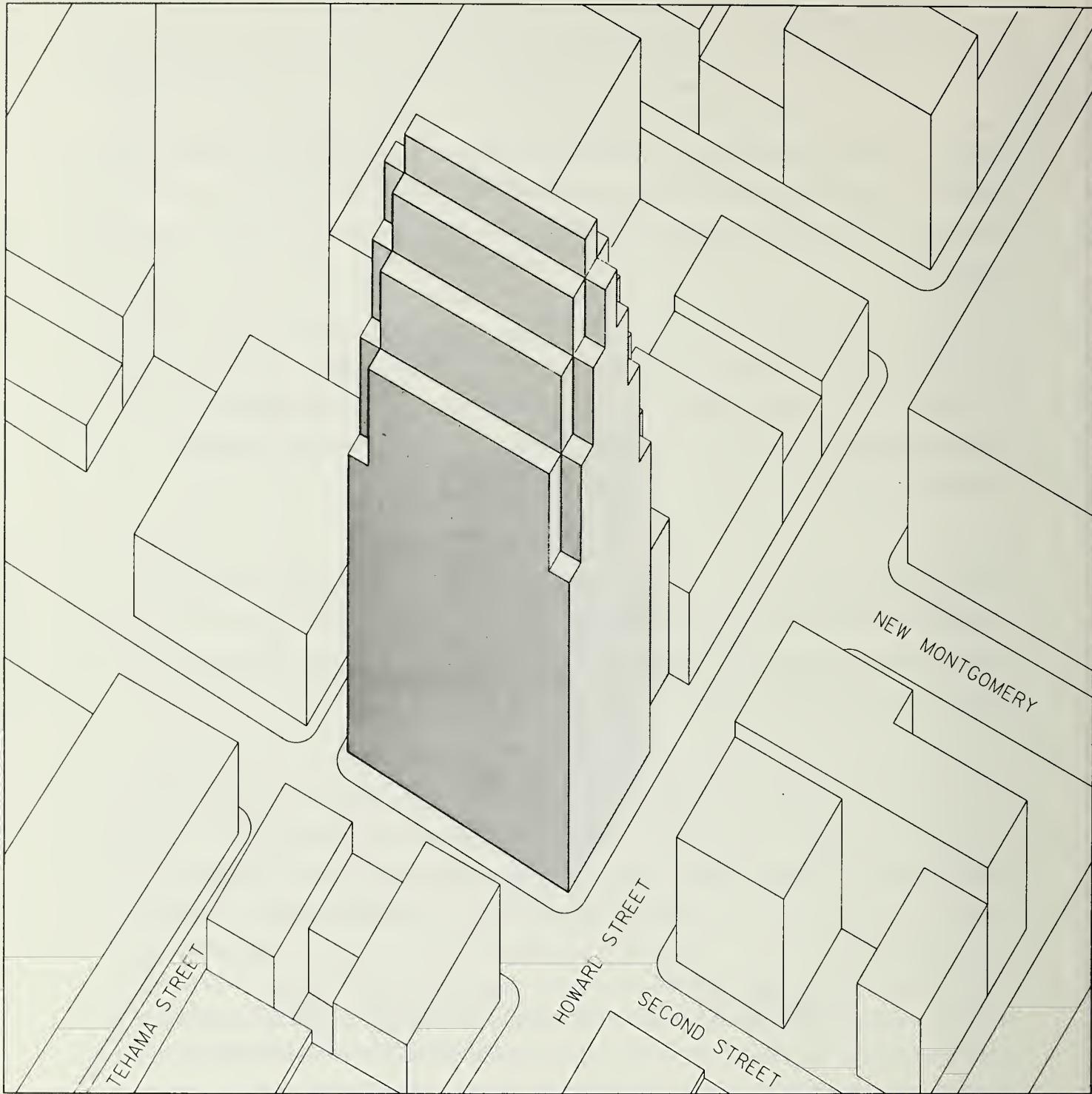
This alternative considers a building using the maximum allowable transfer of development rights (TDR) to obtain the maximum allowable FAR of about 18:1 for this site.

Office space in this alternative would be about 430,650 sq. ft. (compared to 236,750 sq. ft. with the project). The building would be 27 stories tall (about 385 ft.) compared to 16-stories (225 ft.) with the project. Retail space and parking area would be as for the project. The open space requirement for this alternative would be 8,800 sq. ft., which would be met in a similar manner to the project on the ground floor of the building. This alternative has been designed to conform as closely as possible to sun access requirements for Second St. but would also require an exception to sun access requirements as the building would penetrate the required sun access angle of 60°.

This alternative would be about 125 feet taller than the project; it would be more visible in mid- and long-range views than the project. (see Figure 26, p. 135) This alternative would require 287,100 sq. ft. of TDR (compared to 93,150 with the project). As with the project, the two on-site buildings rated "C" and "D" by Heritage would be demolished; thus, impacts on architectural resources would be the same as with the project.

Shadows from this alternative would be about 55% more than with the project. This alternative would not add shadow to any open space protected by Proposition K because of intervening buildings. Wind effects would be greater than with the project. This alternative would result in winds exceeding the pedestrian comfort criteria at five of the 20 locations tested (compared to three locations with the project).

Travel demand, air quality and energy impacts associated with on-site uses would be about 65% greater than those of the proposed project because of the larger amount of office space than with the project. Traffic and air quality effects on local intersections would be the same as with the project as this alternative would have the same number of parking spaces. Construction noise impacts would be of a longer duration, as the construction period would be longer for this alternative. Effects on cultural resources would be the same as with the project, as the depth of excavation would be the same as with the project. Growth-inducing impacts of this alternative would be similar to those for the project. This alternative would provide employment for about 1,450 employees, compared to about 940 employees for the project. It would generate a demand for about 166 new dwelling units in San Francisco, based on the OAHPP Formula, compared to 89 for the project.



NOT TO SCALE

222 SECOND STREET

FIGURE 26
ALTERNATIVE C: MAXIMUM FLOOR AREA WITH
TRANSFER OF DEVELOPMENT RIGHTS, 18:1 FAR

SOURCE: Gensler and Associates

The project sponsor has rejected this alternative because in his opinion, it would result in an unattractive building form, and which would become increasingly inefficient at upper floors.

D. ALTERNATIVE D: NO PARKING

This alternative would have no parking spaces (the project would have 70 spaces); other uses, building dimensions, design elements and floor areas would be as for the project. One basement level would be eliminated, the other would contain only service/mechanical/storage space.

Except for impacts on traffic and air quality at local intersections, and impacts on cultural resources (with one less subsurface level than the project), impacts of this alternative would be as for the project (land use, urban design, shadow, wind, construction noise, employment and growth inducement). This alternative would result in no automobile traffic from the site and thus would have less effect than the project at local intersections (traffic impacts on local intersections as a result of the project would not change levels of service at nearby intersections or freeway on-ramps, or measurably effect air quality). Because this alternative would have no parking spaces, none of the 108 spaces now on the site would be replaced. This alternative would include one less subsurface parking level than the project, and would therefore have less potential effect on cultural resources than the project.

The project sponsor has rejected this alternative because he feels the proposed parking would be an asset to the building, and because the 70 short-term parking spaces would help meet the demand for short-term parking attributable to the project on-site, without disruption to transportation or transit in the project vicinity.

VIII. DISTRIBUTION LIST

FEDERAL AND STATE AGENCIES

Northwest Information Center California
 Archaeological Inventory
 Department of Anthropology
 Sonoma State University
 Rohnert Park, CA 94928
 Attn: Christian Gerike

California Department of Transportation
 Transportation Planning
 P.O. Box 7310
 San Francisco, CA 94120
 Attn: Gary Adams

California Department of Transportation
 Public Transportation Branch
 P.O. Box 7310
 San Francisco, CA 94120
 Attn: William Chastain

State Office of Intergovernmental
 Management
 State Clearinghouse
 1400 - Tenth Street
 Sacramento, CA 95814
 Attn: Loreen McMahon

REGIONAL AGENCIES

Association of Bay Area Governments
 P.O. Box 2050
 Oakland, CA 94604
 Attn: Sally Germain

Bay Area Air Quality Management
 District
 939 Ellis Street
 San Francisco, CA 94109
 Attn: Irwin Mussen

CITY AND COUNTY OF SAN FRANCISCO

Bureau of Building Inspection
 450 McAllister Street
 San Francisco, CA 94102
 Attn: Larry Litchfield
 Superintendent

Landmarks Preservation Advisory Board
 450 McAllister Street
 San Francisco, CA 94102
 Attn: Jonathan Malone, Secretary
 Ina Dearman, Vice President
 Anne Bloomfield
 Alice Ross Carey
 Michael F. Crowe
 Elizabeth de Losada
 David M. Hartley
 Enid Ng Lim
 Hisashi Bill Sugaya

Mayor's Office of Business and Economic
 Development
 100 Larkin Street
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Institute of Government Studies
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Berkeley, CA 94720

IX. APPENDICES

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DEPARTMENT OF CITY PLANNING 450 McALLISTER STREET • SAN FRANCISCO, CALIFORNIA 94102

NOTICE THAT AN ENVIRONMENTAL IMPACT REPORT IS DETERMINED TO BE REQUIRED

Date of this Notice: December 26, 1986

Lead Agency: City and County of San Francisco, Department of City Planning
450 McAllister Street - 6th Floor, San Francisco, CA 94102

Agency Contact Person: Ivan Christie Telephone: (415) 558-5261

Project Title: 222 Second Street
86.73E

Project Sponsor: Sepulveda Properties, Inc.

Project Contact Person: Kathleen Wager

Project Address: 222 Second Street, southwest corner of Second and Howard Streets.

Assessor's Block(s) and Lot(s): 3735, Lots 1, 4, and 53

City and County: San Francisco

Project Description: Construction of 17-story, 225-ft.-tall office and retail bldg., including open space and a mechanical penthouse. The project would contain about 315,000 gross sq. ft. (gsf), including about 236,700 gsf of office space, 9,460 gsf of retail space, 5,600 gsf of open space, 70 parking spaces, two truck loading spaces, mechanical and storage space. The project would require demolition of two existing vacant buildings (with a total area of 22,000 gsf) and removal of a 108-space surface parking lot.

THIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL IMPACT REPORT IS REQUIRED. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance), and the following reasons, as documented in the Environmental Evaluation (Initial Study) for the project, which is attached.

Please see attached Initial Study.

Deadline for Filing of an Appeal of this Determination to the City Planning Commission: January 6, 1987.

An appeal requires: 1) a letter specifying the grounds for the appeal, and;
2) a \$35.00 filing fee.

Barbara W. Sahm
Barbara W. Sahm, Environmental Review Officer

222 SECOND STREET
INITIAL STUDY
86.73E

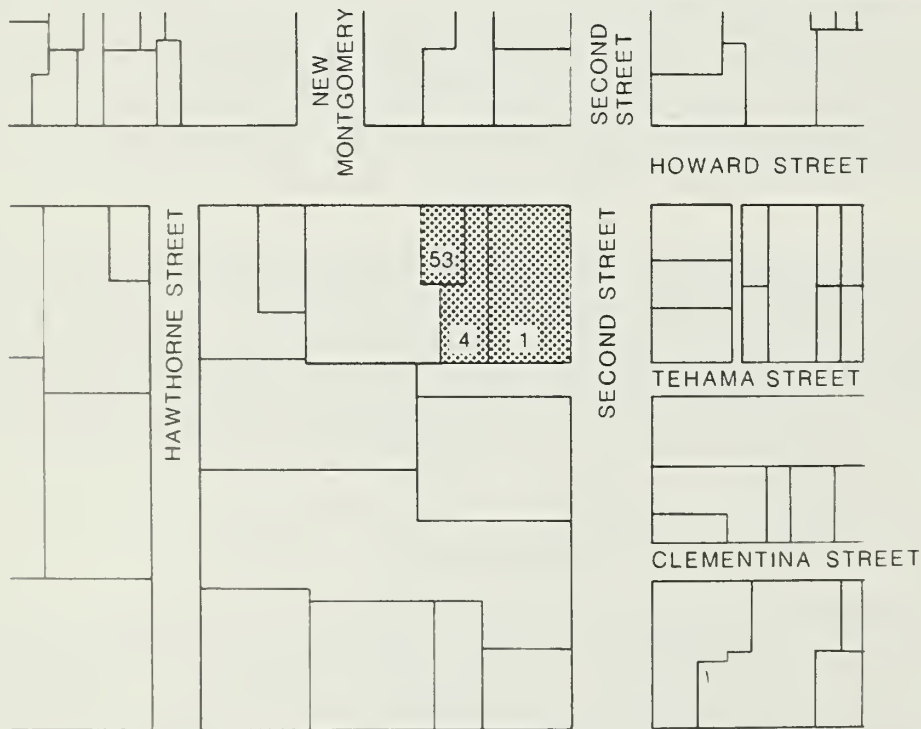
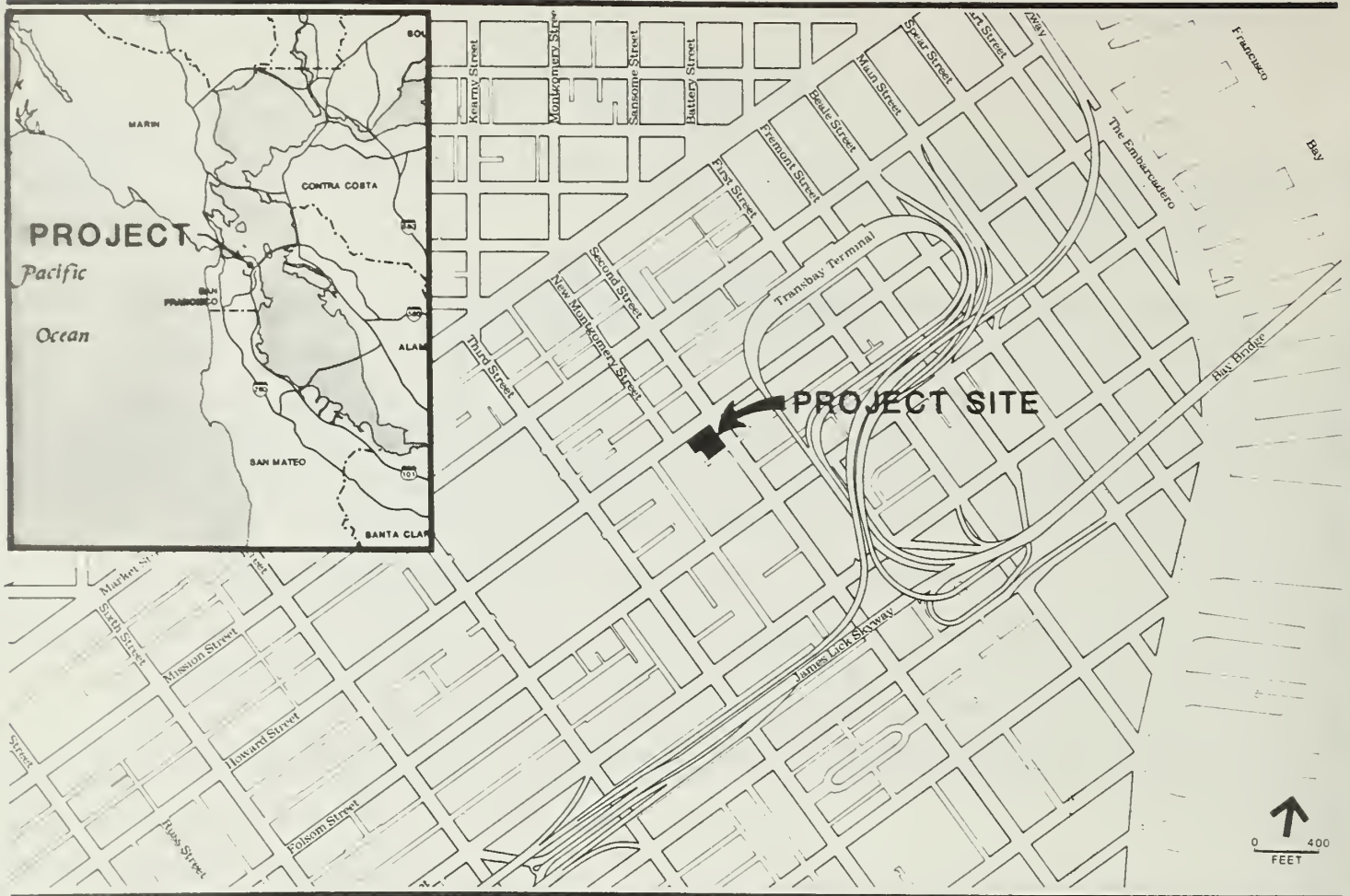
1. PROJECT DESCRIPTION

The proposed 222 Second Street project would be the construction of a 16-story, 225-ft. tall office and retail building, including open space and a mechanical penthouse. The project would include two basement levels, one containing mechanical and storage space, and one containing parking. The proposed building would contain a total of about 315,000 sq. ft. The proposed project would require demolition of two existing, vacant buildings (with a total area of 22,000 gross sq. ft.) formerly occupied by W. A. Palmer Films, Inc., and removal of a 108-space (valet) surface parking lot (14,025 sq. ft.).

The project site (Assessor's Block 3735, Lots 1, 4, and 53) is at the southwest corner of the intersection of Second and Howard Sts., two blocks south of Market St. and two blocks north of the James Lick Freeway (I-80). (See Figure 1, p. 2.) The total site area is 23,925 sq. ft.

The site is in the C-3-0 (SD), Downtown Office (Special Development) District and the 350-S and 150-S Height and Bulk Districts. The basic permitted floor area ratio (FAR) is 6:1; the maximum allowable FAR, including transferable development rights (TDR) is 18:1. The FAR of the project would be about 9.9:1. The project would use about 93,150 sq. ft. of TDR from as-yet unidentified lots.

The proposed project (see Figure 2, p. 3) would contain a total of about 236,700 gross sq. ft. (gsf) of office space on floors two through 15. The project would include approximately 9,460 gsf of retail space, 5,600 gsf of open space (both uses located on the ground floor), and about 23,925 gsf of parking (about 70 spaces, located on the second basement level). The open space would be located on the ground floor around the perimeter and through the site, allowing access to retail space and permitting pedestrian passage through the site from Second St. to Howard St. The ground floor would be a double-height floor. The project would contain a total of about 315,000 gsf. Two truck loading spaces would be located on the ground level, with access from Tehama St. Access to the 70-parking spaces (all independently accessible) would also be from Tehama St. The proposed project would result in a net increase of about 231,700 gsf of office space and a decrease of about 38 parking spaces (although the area devoted to parking would



PROJECT SITE

(ASSESSOR'S BLOCK 3735,
LOT NOS. 1, 4 & 53)



FIGURE 1
SITE LOCATION

225 Ft.

75 HAWTHORNE (UNDER CONSTRUCTION)

35 HAWTHORNE
(APPROVED
PROJECT)

55 HAWTHORNE

PROPOSED NEW BUILDING

631 HOWARD

639 HOWARD

0 50
FEET

increase by 9,900 gsf, but because parking spaces would be independently accessible instead of valet the number of spaces would decrease). Retail and open space would be new uses to the site.

Project construction would take about 22 months; total construction cost would be about \$25,260,000. The project sponsor is Sepulveda Properties, Inc.; the project architect is Gensler and Associates.

II. INTRODUCTION - Tiered Environmental Impact Report

A tiered EIR will be prepared for the proposed 222 Second Street project. Where a prior environmental impact report has been prepared and certified for a program, plan, policy or ordinance, the lead agency for a later project that meets the specified requirements is required (as of January 1, 1986) to examine significant effects of the later project upon the environment, with exceptions, by using a tiered report (Sections 21093 and 21094 of the Public Resources Code, the California Environmental Quality Act).

Agencies are required to tier EIR's which they prepare for separate but related projects (including general plans, zoning changes and development projects), in order to avoid repetitive discussions of the same issues in successive EIRs and to ensure that EIRs prepared for later projects which are consistent with a previously approved plan, policy, program, or ordinance concentrate on environmental effects which may be mitigated or avoided in connection with the decision on each later project. Tiering is appropriate when it helps a public agency to focus on the issues ripe for decision at each level of environmental review and to exclude duplicative analysis of environmental effects examined in previous environmental impact reports. The law directs that where a prior EIR has been prepared and certified as noted above, the lead agency shall examine project-specific significant effects of the later project on the environment by using a tiered EIR.

The Initial Study is to assist the lead agency in making the determinations required for tiering. The EIR will be tiered from the Downtown Plan EIR (EE81.3, Final EIR, certified October 18, 1984) and will analyze project-specific impacts. The EIR will discuss potentially significant effects that were not examined in the Downtown Plan EIR and will include applicable mitigation measures for site-specific effects. Cumulative impacts

of the development forecast in the C-3 districts to the year 2000 are addressed in the Downtown Plan EIR. That cumulative analysis will not be repeated in the EIR for this project. The Downtown Plan EIR may be examined at the Department of City Planning, 450 McAllister St., the San Francisco Main Library, and various branch libraries.

The Downtown Plan EIR has been, and continues to be, reviewed for validity and currency with regard to development and land use forecasts, employment growth, transportation impacts, housing production, and residence patterns. The Downtown Plan EIR forecasts are long-term forecasts that focus on amounts and types of growth expected in the downtown C-3 districts through the year 2000. No attempt was made to forecast on an annual or short-term basis; the long-term forecasts include a number of shorter-term ups and downs which average out over time. Recent preliminary information shows that the Downtown Plan EIR forecasts may have been high, indicating that in general, impacts may have been somewhat overestimated for the Downtown Plan alternative. With regard to specific issues, the assumptions in the Downtown Plan EIR remain valid and the analyses and conclusions continue to provide a reasonable conservative assessment of long-term impacts of growth.

Thus, for example, the drop in gasoline prices in early-mid 1986 was considered to be temporary and would not cause long-term shifts in transportation modes from transit and carpool to drive-alone. This is based on the expectation that gas prices will rise, and on the fact that bridges and freeways providing access to San Francisco were generally at or near capacity during the PM peak at the time the Downtown Plan EIR analyses were prepared, and have continued and are expected to continue at or near capacity in the future. While driving may appear temporarily attractive to some commuters, length of time of commute would deter others or cause shifts to carpools or transit by other drivers in the "push-pull" relationship between traffic congestion and transit ridership.

Further, the Downtown Plan EIR forecast of city-wide housing development of 600 to 1,500 units per year on average has been met during the ensuing three years for which data is available: housing completions were about 940 units in 1983-84 and about 1,000 units in 1985.

The recent increase in the vacancy rate for office space in the C-3 district suggests that growth as estimated in the Downtown Plan EIR may be somewhat less than was forecast in that document. This could possibly result in somewhat less impact.

On November 4, 1986, the voters of San Francisco passed Proposition M, entitled the "Accountable Planning Initiative." Although Proposition M could affect the approval action on this project, any environmental impacts of the project itself would not specifically be affected by passage of the proposition. If Proposition M were to have the effect of reducing the amount of development in the Downtown to the year 2000, and if reduced development were to cause a reduction in the amount of employment growth in the future, then the forecasts in the Downtown Plan EIR would have been overestimated and the corresponding cumulative impacts analyses would represent a conservative case.

The Downtown Plan EIR also analyzed annual growth rate limits of 500,000, 1,000,000 and 1,500,000 gsf of new office development, citywide, under Mitigation Measures, A. Annual Growth Rate Limits, p. V.A.1., and described the effects of these measures for each topic in the Mitigation Chapter. Thus a development cap was analyzed in the prior EIR, for these various amounts of Downtown development to the year 2000.

With regard to the Mission Bay project proposed by the Santa Fe Pacific Realty Corporation, the Downtown Plan EIR accounts for development which might occur in the Mission Bay area by the year 2000.

On the level of regional cumulative development, there are methods for predicting, in a general way, the transportation impacts of expected growth in regional economic activity, including activity at Mission Bay, before Mission Bay planning activities have produced detailed land use plans and growth forecasts. Forecast methods, such as that used in the Downtown Plan EIR and in this EIR, account for this kind of potential but somewhat speculative and non-specific development. As noted on p. C&R-B.38 (of the Downtown Plan EIR): "The EIR analysis does not ignore 'half the downtown growth,' the growth in 'functionally connected areas,' the cumulative list of major projects, or Mission Bay The effects of all of these plans and projects on the economic dynamics of downtown development' are incorporated in the EIR analyses and C-3 District forecast." (See e.g., [Downtown Plan EIR]: pp.IV.C.35-36, IV.C.50, IV.D.60, C&R-B.37-43, C&R-B.56, C&R-B.75-76, and C&R-B.77-78, and Note 42, IV.D.81d.)

Background studies for a major area-wide Mission Bay EIR are underway to accompany the planning effort. This EIR will analyze five alternative development scenarios,

including a wide range of land use mixes for the Mission Bay area, one of which will be the land use program described in Santa Fe Pacific's application for environmental review, received on September 19, 1986 (Case No. 86.505E). Each of these alternatives would include improvements to the street network and transit system, both within the Mission Bay area and in its vicinity.

Because the Mission Bay development proposal is not like a typical development proposal for a single building, the initial application requesting environmental review does not provide the same level of detail about building size, uses, design and amenities that are normal for the application. Santa Fe Pacific's current proposal, as outlined in the application for environmental review, is to proceed with construction in a number of phases. The first phase (the only phase described in the application) would include office space in the block bounded by Third, Townsend, Fourth and King Sts., and residential units in the area south of China Basin between Third and Fourth Sts. No design for this development is included. These individual buildings require further details to undergo environmental review and permitting for their construction, and would be unlikely to be built and absorbed until sometime in the 1990s.

In order to perform an adequate environmental review of the Mission Bay project, additional information resulting from the planning process will be necessary, including, for example, a more specific configuration of proposed land uses, a traffic circulation plan, plans for any proposed changes to the transit system, and some indication of the likely timing both of the project and of any changes to public services in the area. No final decisions on any Master Plan amendments, Planning Code amendments and zoning reclassifications and development agreement are expected until late 1987.

Hence, there are no substantial changes in the Downtown Plan, or its implementation, which require revisions to the Downtown Plan EIR. Furthermore, no new information is available now which would indicate that revisions to the Downtown Plan EIR are necessary or appropriate.

III. SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

A. EFFECTS FOUND TO BE POTENTIALLY SIGNIFICANT

The 222 Second Street project is examined in this Initial Study to identify potential effects on the environment. The cumulative impacts of growth in the C-3 districts to the year 2000 were adequately analyzed in the Downtown Plan EIR. That analysis of cumulative impacts remains current and valid and the determination during certification of that EIR regarding significant effects remains unchanged. Some project-specific potential effects have been determined to be potentially significant, and will be analyzed in an environmental impact report (EIR). They include: the relationship of the project to the Master Plan including the Downtown Plan and the Planning Code; land use; urban design; visual quality; construction air quality and noise; project-related transportation; traffic-generated air quality effects; shadow; wind; project-related employment and cultural resources.

B. EFFECTS FOUND NOT TO BE SIGNIFICANT

The following potential impacts were determined either to be insignificant or to be mitigated through measures included in the project. These items require no further environmental analysis in the EIR:

Glare: Mirrored glass would not be used.

Housing: The project would comply with the Office Affordable Housing Production Program Ordinance. Cumulative and indirect effects, including those of the project, are addressed in the EIR prepared for the Downtown Plan.

Operational Noise: After completion, building operation and project-related traffic would not perceptibly increase noise levels in the site vicinity. Operational noise would be regulated by the San Francisco Noise Ordinance and the project would conform to the Noise Guidelines of the Environmental Protection Element of the Master Plan.

Utilities/Public Services: The proposed project would contribute to the cumulative demand for public utilities and services in the downtown, such impacts anticipated from cumulative downtown development were analyzed in the Downtown Plan EIR and no significant impacts were identified.

Biology: The project site is completely developed; therefore, the project would not affect vegetation or wildlife.

Geology/Topography: A preliminary geotechnical investigation has been made for the project, and a final detailed geotechnical report would be prepared by a California-licensed geologic engineer prior to commencement of construction. The project sponsor and contractor would follow the recommendations of the final report regarding any excavation and construction for the project. Measures to mitigate potential impacts associated with excavation and dewatering are included as part of the project (see pp. 27 and 28).

Water: The site is completely covered by impervious surfaces; therefore, the project would not affect drainage patterns or water quality. See also the measures referenced above to mitigate potential impacts of dewatering and excavation.

Energy/Natural Resources: The project would be designed to comply with performance standards of Title 24 of the California Administrative Code. Its annual energy budget would be about 120,000 Btu per sq. ft. Peak electrical energy and natural gas use would coincide with PG&E's systemwide peaks. Cumulative and indirect effects, including those of the project, are addressed in the EIR prepared for the Downtown Plan. Energy mitigation measures would be included as part of the project (see p. 29).

Hazards: The project would not create a health hazard or be affected by hazardous uses. Mitigation measures to assure project compliance with the City's Emergency Response Plan are included in the project (see pp. 29-30).

A. <u>COMPATIBILITY WITH EXISTING ZONING AND PLANS</u>	Not Applicable	<u>Discussed</u>
*1) Discuss any variances, special authorization, or changes proposed to the City Planning Code or Zoning Map, if applicable.	—	<u>X</u>
*2) Discuss any conflicts with the Comprehensive Plan of the City and County of San Francisco, if applicable.	—	<u>X</u>
*3) Discuss any conflicts with any other adopted environmental plans and goals of the City or Region, if applicable.	<u>X</u>	—

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

The proposed project would comply with the City Planning Code requirements concerning height, bulk and use in the C-3-0 (SD) Downtown Commercial Office (Special Development) District and the 150-S and 350-S Height and Bulk Districts in which the proposed building would be located. The relationship of the proposed project to the policies of the Master Plan, including the Downtown Plan, and provisions of the City Planning Code, will be discussed in the EIR. The project would not conflict with other adopted plans and goals; however, issues related to the compatibility with zoning and plans will be discussed in the EIR.

B. <u>ENVIRONMENTAL EFFECTS</u> . Could the project:		<u>Yes</u>	<u>No</u>	<u>Discussed</u>
1) <u>Land Use</u> . Could the project:				
* (a)	Disrupt the physical arrangement of an established community?	—	<u>X</u>	<u>X</u>
(b)	Have any substantial impact upon the existing character of the vicinity?	<u>X</u>	—	<u>X</u>

The proposed project site is located south of Market Street, in the C-3-0 (SD) District covered in the Downtown Plan. The proposed project, containing office and retail uses, would constitute an increase in the intensity of the prevailing land uses on the site and in the surrounding area.

Land use and zoning issues will be discussed in the EIR.

2) <u>Visual Quality</u> . Could the project:		<u>Yes</u>	<u>No</u>	<u>Discussed</u>
* (a)	Have a substantial, demonstrable negative aesthetic effect?	—	<u>X</u>	<u>X</u>
(b)	Substantially degrade or obstruct any scenic view or vista now observed from public areas?	—	<u>X</u>	<u>X</u>
(c)	Generate obtrusive light or glare substantially impacting other properties?	—	<u>X</u>	<u>X</u>

The project's appearance and possible effects on views will be discussed in the EIR. Mirrored glass would not be used in the project; the building would not result in glare affecting other properties. The project would comply with City Planning Commission

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

Resolution 9212 which prohibits the use of mirrored or reflective glass. The EIR will, therefore, not discuss glare.

The EIR will discuss the proposed project's relationship to the urban design policies of the Downtown Plan and the objectives and policies of the Urban Design Element of the Master Plan.

3) <u>Population.</u> Could the project:	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
* (a) Induce substantial growth or concentration of population?	—	<u>X</u>	<u>X</u>
* (b) Displace a large number of people (involving either housing or employment)?	—	<u>X</u>	<u>X</u>
(c) Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?	—	<u>X</u>	<u>X</u>

One attendant is currently employed at the existing parking lot on the project site. The two vacant buildings, which housed W. A. Palmer Films, Inc. until December 1984, contained 15 full-time and two part-time employees. The project would not displace these employees as Palmer Films has continued and expanded its operations elsewhere. Project specific employment information regarding number and type of employees on site with the project will be included in the EIR.

The project would generate a demand for about 89 dwelling units according to the Office Affordable Housing Projection Program (OAHPP) formula. The project must comply with the OAHPP, Ordinance No. 358-85, requiring the provision of 89 units or payment of an in-lieu fee of about \$1,237,300. Cumulative and indirect effects including those of this project are addressed, and may be found in, the Downtown Plan EIR. That analysis remains current and valid, and will not be repeated in the 222 Second Street EIR.

The Downtown Plan EIR concluded that population effects resulting from development in the C-3 districts under the Downtown Plan would not be significant. That conclusion would remain true with the project. The Downtown Plan EIR (EE81.3, Final EIR certified October 18, 1984) may be examined at the Department of City Planning, 450 McAllister St.; the San Francisco Main Library; and various branch libraries.

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

4) <u>Transportation/Circulation.</u> Could the project:	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
* (a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?	<u>X</u>	<u>—</u>	<u>X</u>
(b) Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?	<u>X</u>	<u>—</u>	<u>X</u>
(c) Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?	<u>X</u>	<u>—</u>	<u>X</u>
(d) Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?	<u>X</u>	<u>—</u>	<u>X</u>

Increased employment at the site would increase demand on existing transportation systems. The number of pedestrians in the area would also increase. The project would not alter existing circulation patterns except during construction; its effects on circulation during construction will be discussed in the EIR. The project would decrease the number of parking spaces on the site from 108 to about 70. Trip generation will be discussed in the EIR. Traffic would enter and exit the proposed project's garage on Tehama Street, and could affect traffic on Second St., a Transit Preferential Street. Localized transportation impacts of the project will be analyzed in the EIR.

The proposed project could cause traffic circulation problems, and increases in traffic, transit and parking demand. The EIR will discuss traffic increases and movement as they relate to the operation of the street and freeway network in the project vicinity, in particular, the I-80 and US 101 ramps in the vicinity.

The cumulative transportation effects of development in the C-3 districts, including the project, are analyzed in the Downtown Plan EIR. The Planning Commission in certifying the Downtown Plan EIR determined that cumulative transportation impacts would have a significant impact. The cumulative analysis in the Downtown Plan regarding transportation will be incorporated by reference into the 222 Second Street EIR, and the project effects in relation to cumulative impacts will be discussed. The analysis in the Downtown Plan EIR remains current regarding future and project conditions.

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

5) <u>Noise</u> . Could the project:	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
* (a) Increase substantially the ambient noise levels for adjoining areas?	<u>X</u>	<u>—</u>	<u>X</u>
(b) Violate Title 25 Noise Insulation Standards, if applicable?	<u>—</u>	<u>X</u>	<u>X</u>
(c) Be substantially impacted by existing noise levels?	<u>—</u>	<u>X</u>	<u>X</u>

Demolition, excavation, and building construction would temporarily increase noise in the site vicinity. The project would require six to seven weeks of piledriving. Project construction noise and its possible effects on sensitive receptors will be addressed in the EIR.

The noise environment of the site, like all of downtown San Francisco, is dominated by vehicular traffic noise. The Downtown Plan EIR indicates a day-night average noise level (Ldn) of 71 dBA on Second St. and 75 dBA on Howard St. adjacent to the site in 1984./1,2/ The Environmental Protection Element of the Master Plan contains guidelines for determining the compatibility of various land uses with different noise environments. For office uses, the guidelines recommend no special noise control measures in an exterior noise environment up to an Ldn of 70 dBA. For noise levels of 75 dBA and above, the guidelines recommend an analysis of noise reduction requirements and inclusion of noise insulation features in the building design. The project sponsor has indicated that noise insulation measures would be included as part of the design (see mitigation, p. 27). The proposed structure would not include housing, so Title 25 Noise Standards would not be applicable.

Project operation would not result in perceptibly greater noise levels than those existing in the area. The amount of traffic generated by the project during any hour of the day, and cumulative traffic increases at the time of project completion, would cause traffic noise levels to increase by one dBA or less. To produce a noticeable increase in environmental noise, a doubling of existing traffic volume would be required; traffic increases of this magnitude would not occur with anticipated cumulative development including the project./3/

The project would be required to comply with the San Francisco Noise Ordinance, San Francisco Police Code Section 2909, "Fixed Source Noise Levels," which regulates mechanical equipment noise. The project site and surrounding area are within a C-3-0 district. In this district, the ordinance limits equipment noise levels at the property line

to 70 dBA between 7 a.m. and 10 p.m. and 60 dBA between the hours of 10 p.m. and 7 a.m. During lulls in traffic, mechanical equipment generating 70 dBA could dominate the noise environment at the site. The project engineer and architect would include design features in the building to limit mechanical equipment noise levels to 60 dBA. As equipment noise would be limited to 60 dBA to meet the nighttime limit, it would not be perceptible above the ambient noise levels in the project area; operational noise requires no further analysis and will not be included in the EIR.

NOTES - Noise

/1/ San Francisco Department of City Planning, Downtown Plan Environmental Impact Report (EIR), EE81.3, certified October 18, 1984, Vol. 1, Table IV.J.2.

/2/ dBA is a measure of sound in units of decibels (dB). The "A" denotes the A-weighted scale, which simulates the response of the human ear to various frequencies of sound.

Ldn, the day-night average noise level, is a noise measurement based on human reaction to cumulative noise exposure over a 24-hour period, taking into account the greater annoyance of nighttime noises; noise between 10 p.m. and 7 a.m. is weighted 10 dBA higher than daytime noise.

/3/ See Downtown Plan EIR, Vol. 1, Continuous Section IV.E. generally and Section IV.J., pp. IV.J.8-18. Increases of 1 dBA or less in environmental noise are not noticeable by most people outside a laboratory situation (National Academy of Sciences, Highway Research Board, Research Report No. 117 (1971)). (See also FHWA Highway Traffic Noise Prediction Model, Report #FHWA-RD-77-108, December 1978, p. 8, regarding doubling of traffic volumes producing increases of 3 dBA or more, which are noticed by most people.)

6) <u>Air Quality/Climate</u> . Could the project:		<u>Yes</u>	<u>No</u>	<u>Discussed</u>
* (a)	Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?	<u>X</u>	<u>—</u>	<u>X</u>
* (b)	Expose sensitive receptors to substantial pollutant concentrations?	<u>—</u>	<u>X</u>	<u>X</u>
(c)	Permeate its vicinity with objectionable odors?	<u>—</u>	<u>X</u>	<u>X</u>
(d)	Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect public areas, or change the climate either in the community or region?	<u>X</u>	<u>—</u>	<u>X</u>

Two types of air quality impacts could be expected from the proposed project: long term impacts related to use and operation of the project, and short-term impacts from

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

construction activity. Project related traffic and cumulative downtown traffic can be expected to contribute to existing air pollution near the project site and will be discussed in the EIR.

Construction activities would temporarily affect local air quality. Demolition and construction activities would not involve burning of any materials and would not create objectionable odor. Demolition, grading and other construction activities would temporarily affect local air quality for about 22 months, causing a temporary increase in particulate dust and other pollutants. Dust emission during demolition and excavation would increase particulate concentrations near the site. Dustfall can be expected at times on surfaces within 200 to 800 ft. Under high winds exceeding 12 miles per hour, localized effects including human discomfort might occur downwind from blowing dust. Construction dust is composed primarily of large particles that settle out of the atmosphere more rapidly with increasing distance from the source. More of a nuisance than a hazard for most people, this dust could affect persons with respiratory diseases, as well as sensitive electronics or communications equipment. The project sponsor would require the contractor to wet down the construction site twice a day during construction to reduce particulates by at least 50% (see p. 27).

Diesel-powered equipment would emit, in decreasing order by weight, nitrogen oxides, carbon monoxide, sulfur oxides, hydrocarbons, and particulates. This would increase local concentrations temporarily but would not be expected to increase the frequency of violations of air quality standards. The project sponsor would require the project contractor to maintain and operate construction equipment in such a way as to minimize exhaust emissions (see p. 27). Construction air quality effects require no further analysis.

The cumulative effects on air quality of traffic emissions from traffic generated by development in the C-3 districts including the project are analyzed in the Downtown Plan EIR. The Planning Commission in certifying the Downtown Plan EIR determined that cumulative air quality impacts would have a significant impact. The cumulative analysis in the Downtown Plan EIR regarding air quality will be incorporated by reference and the project effects in relation to cumulative effects will be discussed. The analysis and conclusions of the Downtown Plan EIR remain current regarding future and project conditions.

Potential shadowing impacts of the project on sidewalks, parks and other open spaces will be discussed in the EIR. The analysis will include shadow diagrams.

Section 148 of the Planning Code establishes comfort criteria of 11 mph equivalent wind speed for pedestrian areas and 7 mph for seating areas, not to be exceeded more than 10% of the time, year-round between 7:00 a.m. and 6:00 p.m. Project wind effects including the results of wind tunnel testing and the effects of the project in relation to the Downtown Plan criteria, will be discussed in the project EIR.

7)	<u>Utilities/Public Services.</u> Could the project:	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*	(a) Breach published national, state or local standards relating to solid waste or litter control?	—	<u>X</u>	—
*	(b) Extend a sewer trunk line with capacity to serve new development?	—	<u>X</u>	—
	(c) Substantially increase demand for schools, recreation or other public facilities?	—	<u>X</u>	<u>X</u>
	(d) Require major expansion of power, water, or communications facilities?	—	<u>X</u>	<u>X</u>

The Downtown Plan EIR concluded that demand for utilities and public services resulting from development in the C-3 districts under the Downtown Plan would not be significant. The project would fall within this development forecast. The Downtown Plan EIR analysis remains current and valid for future and project conditions. The Downtown Plan EIR (EE81.3, Final EIR certified October 18, 1984) may be examined at the Department of City Planning, 450 McAllister St.; the San Francisco Main Library and various branch libraries. This topic requires no further analysis in the EIR.

8)	<u>Biology.</u> Could the project:	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*	(a) Substantially affect a rare or endangered species of animal or plant or the habitat of the species?	—	<u>X</u>	<u>X</u>
*	(b) Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	—	<u>X</u>	—
	(c) Require removal of substantial numbers of mature, scenic trees?	—	<u>X</u>	—

Because the site is covered by impervious surfaces, the project would not affect plant or animal habitats. This topic will not be discussed in the EIR.

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

9) <u>Geology/Topography/Hydrology.</u> Could the project:	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
(a) Expose people or structures to major geologic hazards (slides, subsidence, erosion, and liquefaction)?	—	<u>X</u>	<u>X</u>
(b) Change substantially the topography or any unique geologic or physical features of the site?	—	<u>X</u>	<u>X</u>

The project site is at about 15 ft., San Francisco City Datum (SFD)./1/ Soils at the site are composed of loose dune sand and fill with debris about 16 to 19 ft. deep. This, in turn, is underlain by one to three ft. of medium dense sandy silt and then, about 58 ft. of medium dense to very dense clayey sand and sand (Posey Formation)./2/ Groundwater levels are expected to be encountered at about 22 ft. below the ground surface./2/

Excavation for the project foundation and basement parking would be conducted to a depth of about 83 ft. SFD, or 22 ft. below grade (about 12 ft. below the existing on-site basement, and about 10 ft. below the basement of the adjacent 631 Howard St. building). A driven pile foundation would probably be required. Vibrations from the impact during pile driving would be felt in adjacent and nearby buildings. These vibrations have been found to be more disturbing to some people than high noise levels. General stress reaction has been observed in humans exposed to brief sounds of 76 dBA. Vibration and noise effects of pile driving on adjacent uses will be addressed in the EIR.

Dewatering would be required during excavation. Dewatering could cause some settlement of the adjacent building at 631 Howard St. The project includes measures to mitigate this potential impact (see pp. 27 and 28).

Pit walls would be shored up to prevent lateral movement during excavation. The adjacent 631 Howard St. structure might need to be underpinned, should excavation go below the base of its foundation, to avoid such damage as cracking of walls or foundations or sagging of floors. The building contractor must comply with the San Francisco Building Code and the Excavation Standards of the California Occupational Safety and Health Agency. Additionally, lowering of the local water table by project dewatering could result in rotting of wooden piles in the site vicinity. A measure to mitigate such an impact would be included as part of the project (see p. 28). If appropriate, a preconstruction survey of adjacent buildings and streets would be made to establish existing elevations.

The closest active faults to San Francisco are the San Andreas Fault, about 9 miles southwest of Downtown, and the Hayward and Calaveras Faults, and 15 and 30 miles east of Downtown, respectively. The project area would experience Strong (Intensity Level D, general but not universal fall of brick chimneys, cracks in masonry and brick work) groundshaking during a major earthquake./4/ The building would be required to meet current seismic engineering standards of the San Francisco Building Code. (See Mitigation Measures for the project's emergency response plan, pp. 29 and 30.) The project would replace buildings on the site built prior to current seismic code standards, and therefore generally more susceptible to earthquake damage.

The project would not have a substantial effect on geology, topography or hydrology, and these topics will not be discussed in the project EIR.

NOTES - Geology/Topography/Hydrology

/1/ San Francisco City Datum establishes the City's "O" point for surveying purposes at approximately 8.6 feet above mean sea level.

/2/ Converse Ward Davis Dixon, "Foundation Investigation, Chevron Building, 2nd and Howard Streets, San Francisco, CA," October 13, 1981.

/3/ The Central Institute for the Deaf, Effects of Noise on People, U.S. EPA, 1971.

/4/ URS/John A. Blume and Associates, San Francisco Seismic Safety Investigation, 1974. Groundshaking intensities that would result from a major earthquake were projected and classified on a five-point scale ranging from E (Weak) through A (Very Violent).

10) <u>Water</u> . Could the project:	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
* (a) Substantially degrade water quality, or contaminate a public water supply?	—	<u>X</u>	—
* (b) Substantially degrade or deplete ground water recharge?	—	<u>X</u>	<u>X</u>
* (c) Cause substantial flooding, erosion or siltation?	—	<u>X</u>	<u>X</u>

The site is currently covered with impervious surfaces. The project would cover the site with a building and paved area and therefore would not alter the drainage pattern of the site. Site runoff would drain into the City's combined sanitary and storm drainage system. A mitigation measure to prevent sediment from entering storm sewers is

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

proposed as part of the project (see p. 28). The project would not affect drainage patterns or water quality because the site is now entirely covered with impermeable surfaces. No further analysis of this topic is required in the EIR.

11) <u>Energy/Natural Resources</u> . Could the project:	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
* (a) Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	—	<u>X</u>	<u>X</u>
(b) Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	—	<u>X</u>	<u>X</u>

The site is currently unoccupied. Annual energy consumption of the previous service and retail use on the site, however, was about 148,000 kWh of electricity and about 1.09 billion Btu of natural gas at the source. A minimal but unknown amount of energy is consumed by existing parking uses on the site./1,2/

Removal of existing structures would require an unknown amount of energy. Fabrication and transportation of building materials, worker transportation, site development, and building construction would require about 435 billion Btu of gasoline, diesel fuel, natural gas, and electricity./3/ Distributed over the estimated 50-year life of the project, this would be about 8.7 billion Btu per year, or about 20% of building energy requirements.

New buildings in San Francisco are required to conform to energy conservation standards specified by Title 24 of the California Administrative Code. Documentation showing compliance with these standards is submitted with the application for the building permit and is enforced by the Bureau of Building Inspection.

Table 1, p. 20, shows the estimated operational energy which would be used by the project. Project demand for electricity during PG&E's peak electrical load periods, July and August afternoons, would be about 1,300 kW, an estimated 0.008% of PG&E's peak load of 16,000 MW./4/ Project demand for natural gas during PG&E's peak natural gas load periods, January mornings, would be about 1,360 cu. ft. per day, or about 0.04% of

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

TABLE 1: ESTIMATED PROJECT ENERGY USE/a,e/

Daily Natural Gas Consumption/b/

Estimated natural gas consumption per sq. ft.	12.0 Btu/c/
Estimated total natural gas consumption	33.3 Therms

Monthly Electric Consumption/b/

Estimated electrical consumption per sq. ft.	1.2 kWh (12,300 Btu)/d/
Estimated total electrical consumption	340,000 kWh (3.4 billion Btu)

Annual Consumption

Estimated total annual natural gas consumption	9,840 Therms (0.98 billion Btu)
Estimated total annual electrical consumption	4.0 million kWh (41.7 billion Btu)
Estimated total annual energy consumption	42.7 billion Btu (7,630 barrels of oil)

/a/ Energy use includes space conditioning, service water heating, and lighting in accordance with allowable limits under Title 24. Estimated electricity includes an additional three kWh/sq. ft./yr., consumed by appliances such as typewriters, computers, coffee makers, etc., than assumed by Title 24 estimates.

/b/ Electricity and natural gas consumption was based on estimates provided by Glumac and Associates, Consulting Engineers (written communication, March 21, 1986 and April 7, 1986).

/c/ Btu (British thermal unit): a standard unit for measuring heat. Technically, it is the quantity of heat required to raise the temperature of one pound of water 1 degree Fahrenheit (251.97 calories) at sea level.

/d/ Energy Conversion Factors:

one gallon gasoline	=	125,000 BTU
one kilowatt (kW)	=	10,239 BTU
one therm	=	100,000 BTU
one barrel oil	=	5,600,000 BTU

/e/ Monthly and annual figures may not match due to rounding to three significant digits.

SOURCE: Environmental Science Associates, Inc., and Department of City Planning

PG&E's peak load of about 3.3 million cu. ft. per day./4/ Annual and peak daily electricity and natural gas consumption are shown in Figures 3 and 4, pp. 22 and 23. Measures to reduce energy consumption are included as part of the project (see p. 29).

Projections of electrical use for growth that would occur under the Downtown Plan, as analyzed in the Downtown Plan EIR, indicate an increase of about 330-350 million kWh

per year between 1984 and 2000, as a result of all new development occurring in the C-3 district. Natural gas consumption is expected to increase by 470 million cubic feet (about five million therms) per year during the same time period, of which 210 cubic feet (about two million therms) per year would be for office uses.

Increased San Francisco energy demands to the year 2000 would be met by PG&E from nuclear sources, oil and gas facilities, hydroelectric and geothermal facilities, and other sources such as cogeneration, wind and imports. PG&E plans to continue receiving most of its natural gas from Canada and Texas under long-term contracts.

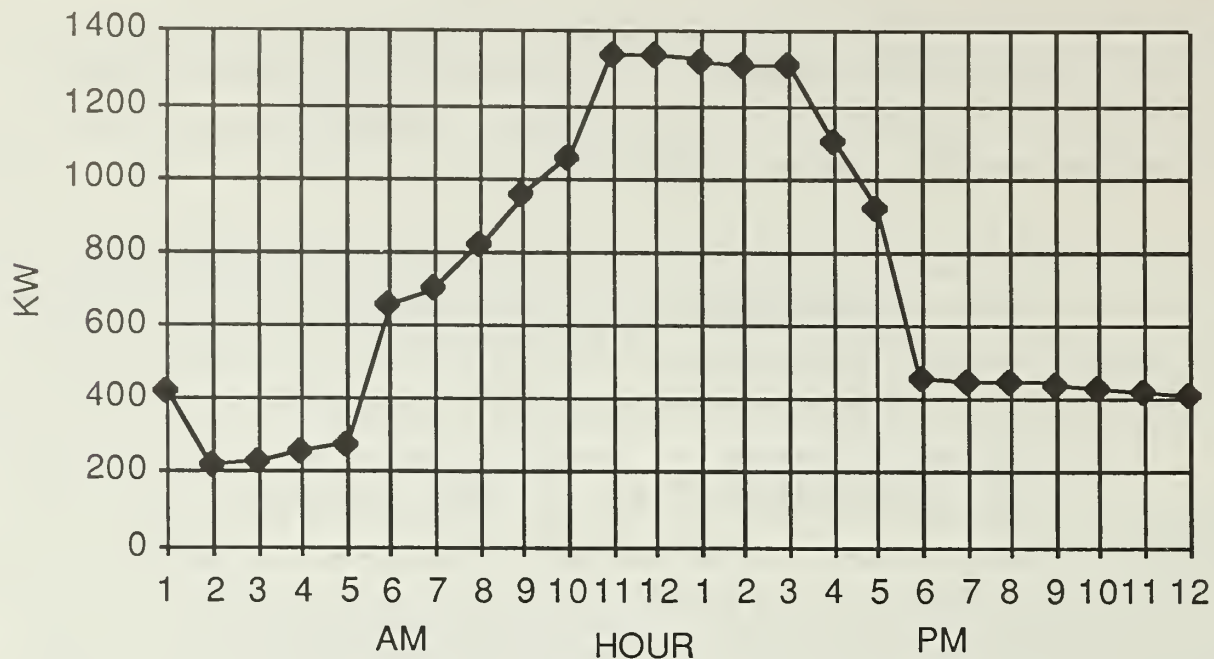
Project-related transportation would cause additional, off-site energy consumption. Annual project-related trips (about 174,000 auto vehicle trip ends [vte], 266,000 bus person trip ends [pte], 18,300 train pte, 8,300 ferry pte, 32,700 jitney/van/taxi/motorcycle/charter bus pte, 226,000 BART pte, and 203,000 Muni electric pte) would require about 141,200 gallons of gasoline and diesel fuel, and about 1.4 million kWh of electricity annually, as indicated in Table 2, p. 24. These figures were calculated based on data contained in the Downtown Plan EIR. The total annual transportation energy demand, converted with at-source factors to a common thermal energy unit, would be about 34 billion Btu, the energy equivalent of 6,070 barrels of oil. This projected use is based upon the mix of highway vehicles in California in 1987. Vehicle fuel use is expected to decrease as the vehicle fleet becomes more efficient and fuel more expensive.

The Downtown Plan EIR (pp. IV.G.5 - IV.G.19) concluded that energy consumption resulting from development in the C-3 district under the Downtown Plan would not be significant and that conclusion remains valid for the future and project conditions.

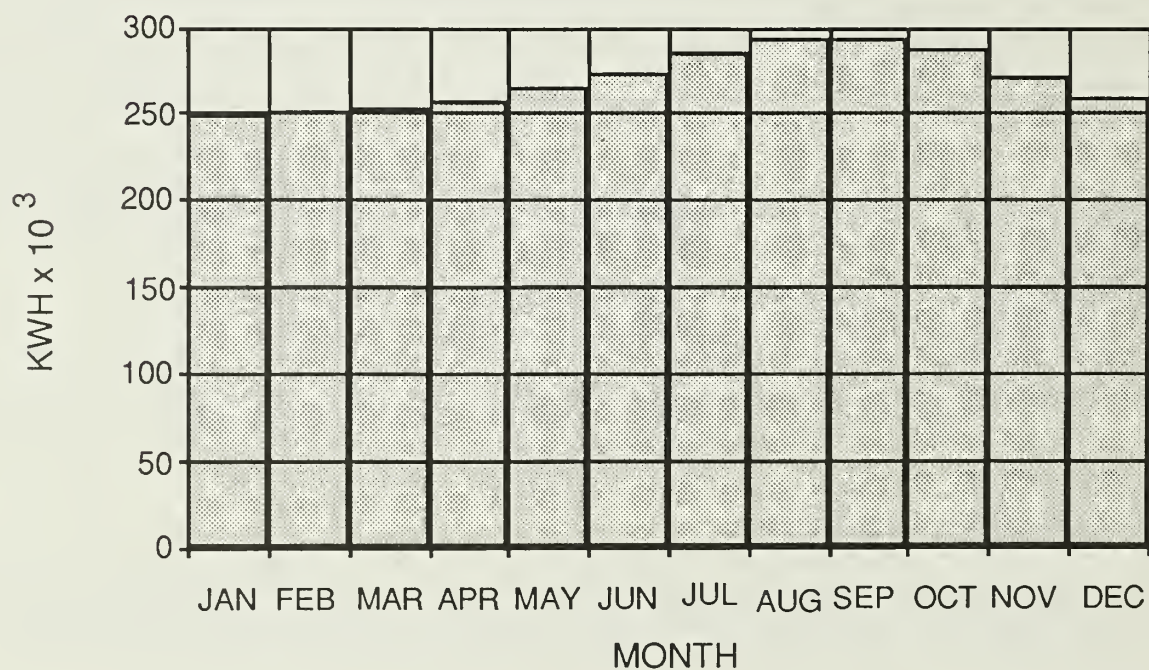
This topic, energy impacts, requires no further analysis and will not be discussed in the EIR.

NOTES - Energy/Natural Resources

- /1/ Existing energy use is based on PG&E customer billings for 1984; at-source thermal energy, given in British thermal units, Btu, is based on information received from PG&E, Technical Service Department, May 10, 1984.

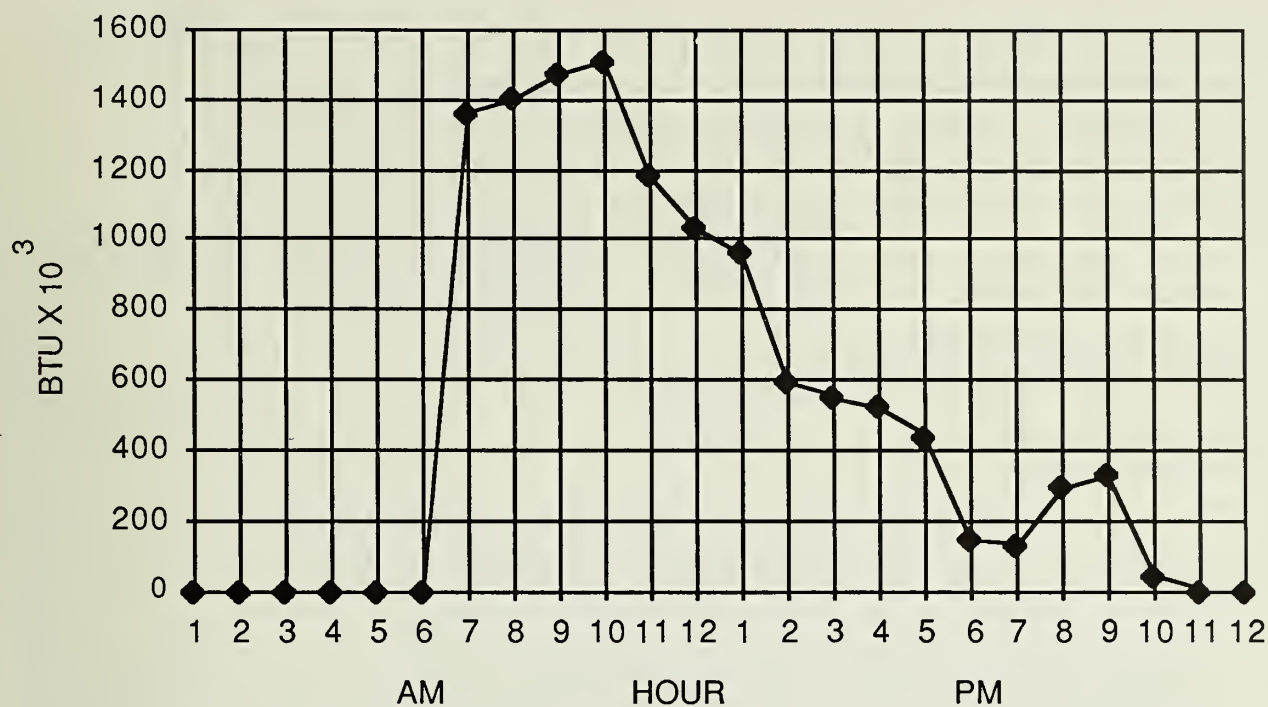


PEAK DAY ELECTRICAL DEMAND BY HOUR (AUGUST)

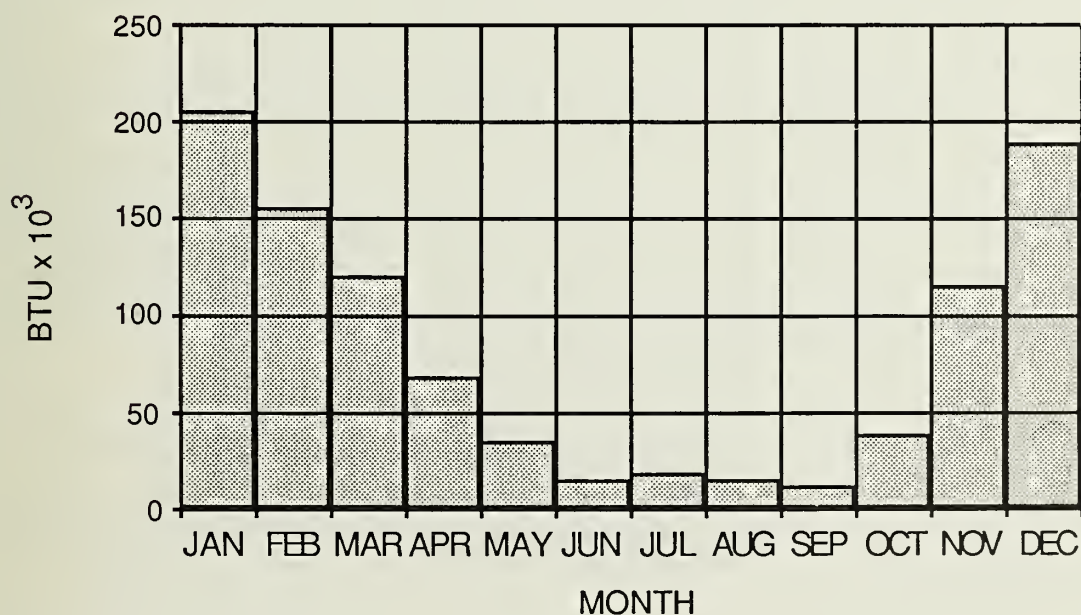


ANNUAL CONSUMPTION OF ELECTRICITY BY MONTH

**FIGURE 3
ELECTRICITY-PEAK DAY DEMAND
AND ANNUAL CONSUMPTION**



PEAK DAY NATURAL GAS LOAD DISTRIBUTION (JAN. 1ST)



ANNUAL NATURAL GAS LOAD DISTRIBUTION

**FIGURE 4
NATURAL GAS PEAK DAY AND
ANNUAL GAS LOAD DISTRIBUTION**

TABLE 2: PROJECT-RELATED ANNUAL TRANSPORTATION ENERGY CONSUMPTION/a/

	Electricity (kWh)	Gasoline (Gallons)	Diesel (Gallons)	Total Btu (Billion)
Auto/Taxi/Jitney/Motorcycle/ Charter Bus	--	115,000	--	16.1
BART	1,250,000	--	--	12.8
Muni Electric	96,200	--	--	0.98
Regional Bus Systems	--	--	22,000	3.5
SPRR	--	--	4,200	0.67
Project Total	1,350,000	115,000	26,200	34.0

/a/ The methods used to calculate these figures are described in detail in the Downtown Plan EIR, EE81.8, certified November 18, 1984, in Appendix N. The associated data is contained in Table 6 of that document. Calculations are also based, in part, on vehicle miles travelled (see calculations for the project on file at the Department of City Planning, Office of Environmental Review, 450 McAllister St.).

SOURCE: Environmental Science Associates, Inc.

/2/ The British thermal unit (Btu) is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at sea level; all references to Btu in this Initial Study are at-source values. The term "at-source" means that adjustments have been made in the calculation of the thermal energy equivalent (Btu) for losses in energy that occur during generation, transmission, and distribution of the various energy forms as specified in: ERCDC, 1977, Energy Conservation Design Manual for New Non-Residential Buildings, Energy Conservation and Development Commission, Sacramento, California, and Apostolos, J. A., W. R. Shoemaker, and E. C. Shirley, 1978 Energy and Transportation System, California Department of Transportation, Sacramento, California, Project #20-7, Task 8.

/3/ Hannon, B., et al., 1978, "Energy and Labor in the Construction Sector," Science 202:837-847.

/4/ San Francisco Department of City Planning, Downtown Plan Environmental Impact Report (EIR) (EE81.3), certified October 18, 1984, Vol. 1, pp. IV.G.3-4. (Note: one cu. ft = 1,100 Btu)

12) <u>Hazards.</u> Could the project:	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
* (a) Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?	—	<u>X</u>	<u>X</u>
* (b) Interfere with emergency response plans or emergency evacuation plans?	—	<u>X</u>	<u>X</u>
(c) Create a potentially substantial fire hazard?	—	<u>X</u>	<u>X</u>

The project would not create a potential public health hazard through the production or disposal of harmful materials.

The project would increase the daytime population in downtown San Francisco. Employees in the proposed building would contribute to congestion if an emergency evacuation of the downtown area were required. An evacuation and emergency response would be developed as part of the proposed project (see pp. 29 and 30). The project's emergency plan would be coordinated with the City's emergency planning activities. This mitigation measure is proposed as part of the project; thus this topic will not be discussed in the EIR.

The increased number of persons using the site would not substantially increase the fire hazard at the site as the project would be required to conform to the Life Safety provisions of the San Francisco Building Code and Title 24 of the State Building Code. The project would replace buildings built prior to these code requirements.

13) <u>Cultural.</u> Could the project:	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
* (a) Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study?	<u>X</u>	—	<u>X</u>
(b) Conflict with established recreational, educational, religious or scientific uses of the area?	—	<u>X</u>	—
(c) Conflict with the preservation of buildings subject to the provisions of Article 10 or Article 11 of the City Planning Code?	—	<u>X</u>	<u>X</u>

Archival research was conducted regarding the possibility of encountering artifacts on the site./1/

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

There is no recorded occupation or use of the project site and area during the Prehistoric (ca. 6000 B.C. – 1775 A.D.), Spanish/Mexican (1775 – 1845), or Early American (1846 – 1848) periods. When the first U.S. Coastal Survey map was prepared in 1852, the project site was still undeveloped. Between 1852 and 1854, the site was first graded and a significant portion of the natural topography was cut away. The first documented occupation of the project site took place in the middle 1850s. Archival research indicates that the site contains little to no cultural resources which precede the middle to late 1850s and that none of the documented uses on the project site appear to have been associated with historically significant persons or events. However, archaeological deposits associated with the later Gold Rush, City Building and Late Nineteenth Century periods could exist at the project site. This topic will be discussed further in the EIR.

West of and adjacent to the site, at 631 Howard St., is the William Volker Building, rated "Category II" (architecturally significant) in the Downtown Plan. The project site is adjacent to, but not within, the New Montgomery – Second Street Conservation District, one of the earliest extensions of the Financial District into South of Market.

Architectural resources in the project vicinity, including the William Volker Building adjacent to the project site, will be discussed in the urban design section of the EIR.

NOTE – Cultural

/1/ An archaeological resources report titled Cultural Resources Evaluation of 222 Second Street, San Francisco, California was prepared for the proposed site by Allen G. Pastron, Ph.D., of Archeo-Tec, April 1986, and is on file at the Office of Environmental Review, Department of City Planning, 450 McAllister St., San Francisco.

C. <u>OTHER</u>	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
Require approval of permits from City Departments other than Department of City Planning or Bureau of Building Inspection, or from Regional, State or Federal Agencies?	—	<u>X</u>	—
D. <u>MITIGATION MEASURES</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u> <u>Discussed</u>
1) If any significant effects have been identified, are there ways to mitigate them?	—	—	<u>X</u> —

	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>Discussed</u>
2) Are all mitigation measures identified above included in the project?	<u>X</u>	<u>—</u>	<u>—</u>	<u>X</u>

The following are mitigation measures related to topics determined to require no further analysis in the EIR. The EIR will contain a mitigation chapter describing these measures and also including other measures which would be, or could be, adopted to reduce potential adverse effects of the project identified in the EIR.

Operational Noise

- As recommended by the Environmental Protection Element of the San Francisco Master Plan, an analysis of noise reduction measurements would be prepared by the project sponsor and recommended noise insulation features would be included as part of the proposed building. For example, such design features could include fixed windows and climate control.

Construction Air Quality

- The project sponsor would require the general contractor to sprinkle demolition sites with water continually during demolition activity; sprinkle unpaved construction areas with water at least twice per day to reduce dust generation by about 50%; cover stockpiles of soil, sand, and other materials; cover trucks hauling debris, soils, sand or other such material; and sweep streets surrounding demolition and construction sites at least once per day to reduce total suspended particulates (TSP) emissions. The project sponsor would require the general contractor to maintain and operate construction equipment so as to minimize exhaust emissions of TSP and other pollutants by such means as a prohibition on idling of motors when equipment is not in use or trucks are waiting in queues, and implementation of specific maintenance programs (to reduce emissions) for equipment that would be in frequent use for much of a construction period.

Geology/Topography/Hydrology

- A detailed foundation and structural design study would be conducted for the building by a California-licensed structural engineer and a geotechnical consultant. The

project sponsor would follow the recommendations of these studies during the final design, excavation and construction of the project.

- As dewatering would be necessary, groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this is found necessary by the Industrial Waste Division of the Department of Public Works, to reduce the amount of sediment entering the storm drain/sewer lines.
- As dewatering would be necessary, the final soils report would address the potential settlement and subsidence impacts of this dewatering. Based upon this discussion, the soils report would contain a determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works would require that a Special Inspector (as defined in Article 3 of the Building Code) be retained by the project sponsor to perform this monitoring. Groundwater observation wells would be installed to monitor the level of the water table and other instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be used to halt this settlement. The project sponsor would delay construction if necessary. Cost for the survey and any necessary repairs to service under the street would be borne by the project sponsor.
- If dewatering is undertaken for the project, the groundwater level in the site vicinity should be monitored. If lowering of the groundwater table were to threaten wooden pile foundations, groundwater recharge would be used to stabilize the groundwater level.

Water Quality

- See the second measure under Geology/Topography/Hydrology, above, for mitigation proposed to prevent sediment from entering storm sewers.

Energy

- A variable-air-volume air conditioning system would control the volume of conditioned air so that the building would maintain a comfortable temperature, efficiently.
- Fluorescent lights with parabolic diffusers would be used to conserve energy and reduce glare. Return air diffuser slots in light fixtures would reduce air conditioning loads by removing part of the heat generated by light fixtures. Whenever possible, office suites would be equipped with individualized light switches, and timeclock operation to conserve electrical energy.
- Natural gas would be used for space and water heating.
- An economizer would be used for cooling whenever the outside air is below building temperature.
- A central programmable lighting control system for master on/off control of tenant area and garage lighting would be incorporated into the project.
- The perimeter tenant lighting fixtures would be separately controlled to reduce lighting load when natural daylight is available.
- A carbon monoxide monitoring system would control garage ventilation to avoid unnecessary operations of fans.

Hazards

- An evacuation and emergency response plan would be developed by the project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services to insure coordination between the City's emergency planning activities and the project's plan and to provide for building occupants in the event of an emergency. The project plan would be reviewed by the Office of Emergency Services and implemented by building management insofar as feasible before issuance by the Department of Public Works of final building permits.

- To expedite implementation of the City's emergency response plan, the project sponsor would prominently post information for building occupants concerning what to do in the event of a disaster.

E. ALTERNATIVES

Alternatives to the proposed project include the following:

- A. No Project: The site would remain in its existing condition with all buildings remaining.
- B. No Parking: The building would contain no parking spaces within the structure.
- C. Planning Code - conforming project without TDR's. The building would be constructed to a maximum floor area allowed without TDRs.
- D. Maximum Floor Area with TDRs: A project with a maximum allowable floor area with TDRs.

These alternatives and their potential impacts will be discussed in the EIR.

F. MANDATORY FINDINGS OF SIGNIFICANCE

Yes No Discussed

- | | | | |
|---|----------|----------|----------|
| *1) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history? | — | <u>X</u> | — |
| *2) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? | — | <u>X</u> | — |
| *3) Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (Analyze in the light of past projects, other current projects, and probable future projects.) | <u>X</u> | — | <u>X</u> |
| *4) Would the project cause substantial adverse effects on human beings, either directly or indirectly? | — | <u>X</u> | — |
| *5) Is there a serious public controversy concerning the possible environmental effect of the project? | — | <u>X</u> | — |

The project would contribute to cumulative impacts in the areas of transportation and air quality. The EIR will incorporate by reference the analyses for air quality and

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

transportation contained in the Downtown Plan EIR. Those analyses remain current for future and project conditions.

G. DETERMINATION THAT A TIERED EIR IS REQUIRED

In light of the discussion in this Initial Study, a tiered EIR is required for this project pursuant to the requirements of Section 21094(b) as follows:

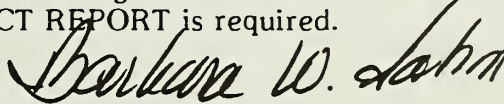
1. The project would be consistent with the Downtown Plan, policies and ordinances for which a Final EIR (EE81.3) was certified October 18, 1984;
2. The project would be consistent with applicable local land use plans and zoning pursuant to the Downtown Plan and Planning Code, with allowable exceptions; and,
3. Section 21166 does not apply.

H. ON THE BASIS OF THIS INITIAL STUDY

☐ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.

☐ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers ___ in the discussion, have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and a tiered ENVIRONMENTAL IMPACT REPORT is required.



Barbara W. Sahm
Environmental Review Officer

for

Dean L. Macris
Director of Planning

Date: 12/22/86

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APPENDIX B: WIND STUDY METHODOLOGY

This summary of wind study methodology is based on a study by Bruce R. White, Ph.D., Associate Professor of Mechanical Engineering at the University of California, Davis. The study is independent of the University. The report is available for review at the Department of City Planning, Office of Environmental Review, 450 McAllister St.

INTRODUCTION

The comfort of pedestrians varies under different conditions of sun exposure, temperature, clothing, and wind speed. Winds up to four mph have no noticeable effect on pedestrian comfort. With winds from four to eight mph, wind is felt on the face. Winds from eight to 13 mph will disturb hair, cause clothing to flap, and extend a light flag mounted on a pole. For winds from 19 to 26 mph, the force of the wind will be felt on the body. At 26 to 34 mph winds, umbrellas are used with difficulty, hair is blown straight, there is difficulty in walking steadily, and wind noise is unpleasant. Winds over 34 mph increase difficulty with balance and gusts can blow people over.

Wind tunnel tests were conducted for winds in the project vicinity in its existing condition, (including all approved development) and with the project in both the existing scenario and the potential development context, all in relation to the Downtown Plan wind performance criteria (adopted by the City Planning Commission, November 29, 1984). Wind tunnel measurements and existing weather records for San Francisco were used to predict equivalent mean wind speeds near the project site./1/ These mean wind speeds were compared to comfort criteria of 11 mph for pedestrian areas and seven mph for sitting areas, each not to be exceeded more than 10% of the time. Separate calculations were also done to evaluate compliance with the hazard criteria that hourly average wind speeds may not reach or exceed 26 mph for one hour per year.

A one inch = 50 feet scale model of the downtown San Francisco area surrounding the proposed building for several blocks in all directions was provided by ESA. The model tested six configurations: existing; project plus existing; potential development context; project plus potential development context; a 6:1 FAR alternative plus existing; and a maximum building envelope alternative plus existing.

The model was tested in a wind tunnel that allows testing of natural atmospheric boundary layer flows past surface objects such as buildings and other structures. The tunnel has an overall length of 22 meters (m) (72 feet), a test section of 1.22 m (4 feet) wide by 1.83 m (6 feet) high and an adjustable false ceiling. The adjustable ceiling and turbulence generators allow speeds within the tunnel to vary from one to four meters per second (m/s) or 4.8 to 19.3 miles per hour (mph).

The wind tunnel study was divided into two parts: flow visualization and wind-speed measurements. The flow visualization observations were performed by injecting a continuous stream of smoke at various near-surface locations. The subsequent motion of the smoke was recorded, and prevailing wind directions were determined. Wind-speed measurements were made with a hot-wire anemometer, an instrument that directly related rates of heat transfer to wind speeds by electronic signals. The hot-wire signals are proportional to the magnitude and steadiness of the wind. Both the mean wind speeds and corresponding turbulence intensities were measured. Thus, high wind speeds and gustiness (changes in wind speeds over short

periods of time) could be detected. Hot-wire measurements made close to the surface have an inherent uncertainty of plus or minus ($\pm$) five percent of the true values. The ratio of near-surface speed to reference wind speed was calculated from the hot-wire measurements.

Twenty test locations were studied for four prevailing wind directions (northwesterly, west-northwesterly, west-southwesterly and westerly) for the six configurations. These wind conditions are the most common in San Francisco, and are therefore, the most representative for evaluations purposes. All hot-wire measurements were taken at the same series of surface points around the building site for the four wind directions and the six cases.

Methodology and Assumptions

The wind ordinance associated with the Downtown Plan (Section 148) is defined in terms of equivalent wind speed. This term denotes an average wind speed (mean velocity), adjusted to include the level of gustiness and turbulence.

The mean wind speeds at street level were determined by a wind tunnel test and a comparison of the test results with statistically representative records of wind data collected atop the Old Federal Building. Data describing the speed, direction and frequency of occurrence of winds were gathered at the old San Francisco Federal Building, at 50 United Nations Plaza, during the six-year period 1945 to 1950. Measurements taken hourly and averaged over one-minute periods have been tabulated for each month (averaged over the six years) in three-hour periods using seven classes of wind speed and 16 compass directions. Analysis of these data shows that during the hours from 6:00a.m. to 8:00pm., about 62% of the winds blow from three of the 16 directions, as follows: Northwest (NW), 10%; West Northwest (WNW), 14%; West (W), 35%; and, all other winds, 36%. Calm conditions occur 2% of the time.

Each wind tunnel measurement results in a ratio that relates the speed of ground-level wind to the speed at the reference elevation, in this case the height of the old San Francisco Federal Building. The wind that is measured is an equivalent wind-speed value which is adjusted to include the level of gustiness or turbulence present.

The frequency with which a particular wind velocity is exceeded at any test location is then calculated by using the measured wind tunnel ratios and a specified ground speed to determine the corresponding reference wind speed for each direction. In general, this gives different reference speeds for each direction (NW, WNW, W, and Other). The wind data for San Francisco are then used to calculate the percentage of the time each reference speed would be exceeded. The sum of these is the total percentage of time that the specified ground-level wind speed is exceeded. A computer is used to calculate the total percentages for a series of wind speeds until the speed corresponding to the speed exceeded 10% of the time is found. Throughout the following discussion, the wind speeds reported refer to the equivalent wind speeds that would be exceeded 10% of the time. This is the time period specified for evaluation of the comfort criteria in the Downtown Plan.

The hazard criterion in the Downtown Plan states that the hourly average wind speed may not reach or exceed 26 mph for one hour per year. The wind data observed at the old San Francisco Federal Building are not full hour average speeds as required by the code, so it is necessary to adjust the equivalent wind speeds to obtain the true hourly average of 26 mph./2/ The adjusted equivalent wind speeds were used to calculate compliance with the hazard criterion.

Study Results

The locations of the measurement points and the results of the wind tunnel study for compliance with the comfort criteria are summarized in Figure B-1, pp. A-39.

Wind speeds in the existing setting are from six to 11 mph. In the existing setting there are no violations of the 11 mph pedestrian comfort criterion. The comfort criterion for seating areas does not apply as there are no seating areas in the project vicinity.

The project would result in winds ranging from six to 13 mph. Increased wind speeds would occur at ten of the 20 locations studied and would be concentrated primarily along Howard St. at the Second St. intersection. Wind speeds would remain the same at eight locations and decrease at two locations. At the north and south corners of the Howard/Second intersection winds would be increased to 12 and 13 mph, exceeding the 11 mph pedestrian comfort criterion. Violations of the comfort criterion would also occur at the end of Tehama Street, where winds would increase to 13 mph. Winds along Second Street, just north and south of the Howard and Second St. intersection, would remain the same or decrease slightly.

The 350 ft.-tall maximum building envelope alternative would result in wind speeds ranging from six to 14 mph. Wind speeds would increase at 13 locations; at four of these locations (all on Howard St.) winds would range from 12 to 13 mph, exceeding the pedestrian comfort criterion. Wind speeds would also violate the 11 mph pedestrian comfort criterion at the end of Tehama St., where winds would increase to 13 mph. Wind speeds would remain the same at four locations and decrease at three locations.

The 103-ft.-tall code-conforming alternative would result in wind speeds ranging from six to 12 mph. Winds would increase at 10 of the 20 locations studied, remain the same at five locations and decrease at five locations. Wind speeds would violate the 11 mph pedestrian comfort criterion at the end of Tehama St., where winds would increase to 12 mph.

Winds were also tested within a "Potential Development Context," which included all buildings contained in the Existing Setting, as well as all projects proposed (but not approved) in the project area including: 524 Howard St., 535 Mission St., and 101 Second St. This scenario would cause existing winds to increase at 11 locations, remain the same at eight, and decrease at one location. Wind speeds would range from six to 12 mph. Winds would increase to 12 mph, exceeding the pedestrian comfort criterion, on the southside of Howard St. mid-way between First and Second Sts.

With the project in the potential development context, winds would increase at 15 locations, decrease at one, and remain the same at four. Wind speeds would range from seven to 15 mph. Winds would violate the pedestrian comfort criterion at the following locations: the east corner of Hawthorne St.; the mid-block section of Howard St.; on the south side; the north and south corners of Howard St., and the end of Tehama St.

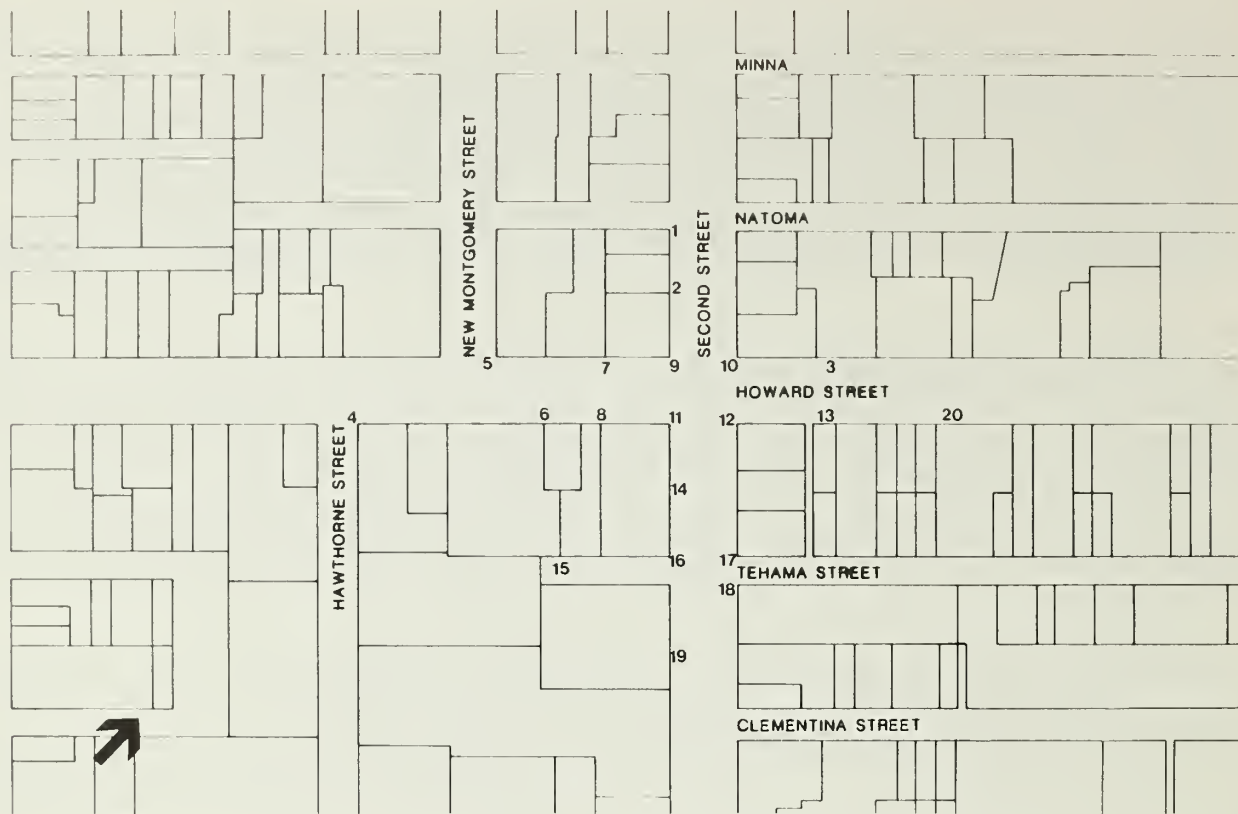
In the opinion of Bruce R. White, Wind Engineering Consultant, the increase in wind speeds along Howard St. at the Second St. intersection, and at the west end of Tehama St., would occur as a result of replacing an existing open lot with a building, thereby intensifying west-northwesterly winds in combination with upwind structures (fronting Howard St. between Hawthorne and Second Sts.). The alternative building design, No Transfer of Development

Rights (Alternative B), was tested for its impacts on wind speeds. Alternative B would have less impact on existing wind conditions than either the proposed project or Alternative C; however, this alternative would cause wind speeds to increase in some locations, but not in excess of the comfort criteria. This alternative would not result in any exceedance of the pedestrian comfort criterion primarily because of a five-ft. setback of the building from the property line along Tehama St. Additional measures that could avoid wind speeds in exceedance of the pedestrian comfort criteria include, along Tehama St., large planters, mature trees (at least 50 ft. in height) or newspaper kiosks.

NOTE - Wind Study Methodology

/1/ Equivalent mean wind speed is defined as the mean wind, multiplied by the quantity (one plus three times the turbulence intensity) divided by 1.45.

/2/ Arens, E., "Designing for an acceptable wind environment," Transactions Engineering Journal, ASCE 107, No. TE2, p. 127-141, 1981.



PEDESTRIAN-LEVEL WIND SPEEDS (MPH)

At each measurement location, the comfort criterion speed established in Section 148 of the Downtown Plan (11 mph for pedestrian and seven mph for public seating areas, not to be exceeded more than 10% of the time) is given. For each configuration, the wind speed, in mph, exceeded at pedestrian level for ten percent of the time is shown. If the comfort criterion for the location is violated, the percentage of time which the comfort criterion is exceeded is stated.

Location	Existing			Project in Exist.			Max. Building Envelope		Code Conform Alternative			Potential Development		Project with Potential		
	Criterion Speed (mph)	10% Exc. Speed (mph)	% Time Criterion Exceeded	10% Exc. Speed (mph)	% Time Criterion Exceeded	10% Exc. Speed (mph)	% Time Criterion Exceeded	Criterion Speed (mph)	10% Exc. Speed (mph)	% Time Criterion Exceeded	10% Exc. Speed (mph)	Criterion Speed (mph)	10% Exc. Speed (mph)	% Time Criterion Exceeded	10% Exc. Speed (mph)	% Time Criterion Exceeded
no. 1	11	7		7		8		11	7			8				
no. 2	11	6		6		6		11	7			7				
no. 3	11	7		7		9		11	7			8				
no. 4	11	10		10		10		11	10			11		12		4
no. 5	11	9		9		9		11	9			9		9		
no. 6	11	9		10		10		11	10			11		9		
no. 7	11	6		10		10		11	9			6		9		
no. 8	11	8		10		10		11	9			10		10		
no. 9	11	6		9		10		11	8			6		9		
no. 10	11	10		12		13	5	11	11			11		15		
no. 11	11	8		13	2	14	11	11	11			9		14		13
no. 12	11	8		10		11		11	9			8		10		15
no. 13	11	9		10		12	5	11	10			11		12		6
no. 14	11	8		8		9		11	6			9		10		
no. 15	11	7		13	7	14	12	11	11			7		15		15
no. 16	11	10		8		8		11	6			10		8		
no. 17	11	11		11		10		11	9			11		11		
no. 18	11	9		9		9		11	8			9		10		
no. 19	11	9		8		7		11	6			7		9		
no. 20	11	10		11		12	4	11	11			12	2	13		8

FIGURE B-1
222 SECOND STREET
NEAR-SURFACE LOCATIONS
FOR WIND SPEED MEASUREMENTS

APPENDIX C: ARCHITECTURAL RESOURCES

ARCHITECTURAL EVALUATION SURVEYS

The architectural ratings discussed in the text of this report (see Section III.B., p. 37), represent the results of three separate architectural surveys.

SAN FRANCISCO DEPARTMENT OF CITY PLANNING INVENTORY

Between 1974 and 1976, the San Francisco Department of City Planning conducted a citywide inventory of architecturally significant buildings. An advisory review committee of architects and architectural historians assisted in the final determination of ratings for the 10,000 buildings, the results of which were entered in an unpublished 60-volume record of the inventory. The rated buildings are also represented on a set of color-coded maps which identify the location and relative significance of each building surveyed. The inventory and maps are on file at the Department of City Planning.

The inventory assessed the architectural significance of the surveyed structures from the standpoint of overall design and particular design features. Both contemporary and older buildings were included, but historical associations were not considered. Each building was given two numerical ratings, for architectural quality and for overall architectural significance, urban design context, and environmental significance. The latter rating is referred to in this report. The ratings ranged from a low of "0" to a high of "5". The architectural survey resulted in a listing of the best 10% of San Francisco's buildings. In the estimation of the inventory participants, buildings rated "3" or higher represent approximately the best two percent of the City's architecture.

HERITAGE SURVEY

The Foundation for San Francisco's Architectural Heritage, through its consultants, Charles Hall Page & Associates, Inc., conducted an architectural and historical survey of all downtown structures. In 1979, the original inventory results were published in the book Splendid Survivors (Foundation for San Francisco's Architectural Heritage, Splendid Survivors, California Living Books, San Francisco, 1979). A subsequent 1982 Heritage survey evaluated all structures in the C-3 zoning districts in areas not covered in the Splendid Survivors survey ("San Francisco Downtown Architectural Survey: C-3 Zoning District, Final Evaluated List", December 1, 1982). The expanded inventory has not been formally published by Heritage. Criteria considered in rating the buildings for both surveys include Architectural Significance, Historic Context and Negative Alterations. Summary ratings from "A" to "D" were assigned to each building on the basis of these scores. The summary ratings, as described on pp. 12-13 of Splendid Survivors, are listed below:

- A. "Highest Importance. Individually the most important buildings in downtown San Francisco, distinguished by outstanding qualities of architecture, historical values, and relationship to the environment. All A-group buildings are eligible for the National Register, and of highest priority for City Landmark status."

- B. "Major Importance. Buildings which are of individual importance by virtue of architectural, historical, and environmental criteria. These buildings tend to stand out for their overall quality rather than for any particular outstanding characteristics. B-group buildings are eligible for the National Register, and of secondary priority for City Landmark status."

The Landmarks Preservation Advisory Board does not distinguish between "A" rated and "B" rated buildings for purposes of preservation.

- C. "Contextual Importance. Buildings which are distinguished by their scale, materials, compositional treatment, cornice and other features. They provide the setting for more important buildings and they add visual richness and character to the downtown area. Many C-group buildings may be eligible for the National Register as part of historic districts."
- D. "Minor or No Importance. Buildings which are insignificant examples of architecture by virtue of original design, or more frequently, insensitive remodeling. This category includes vacant buildings and parking lots. Most D-group buildings are sites of opportunity."

Not Rated. Buildings which have been built or suffered insensitive exterior remodelings since 1945.

ARCHITECTURALLY AND/OR HISTORICALLY SIGNIFICANT BUILDINGS IN THE DOWNTOWN

The City Planning Commission adopted by Resolution No. 8600 (May 29, 1980), a "List of Architecturally and/or Historically Significant Buildings in The Downtown," based on the above described surveys. Generally, buildings rated "3" or higher in the DCP survey or "A" or "B" in the original Heritage survey (Splendid Survivors) were placed on the list. The expanded Heritage survey (1982) has not been adopted by the City Planning Commission to date.

The purpose of the list is to advise developers and building owners of the importance the City places upon the buildings' conservation and to require special review by the Commission of any plans which would affect any building or buildings on the list. Resolution No. 9240 (November 19, 1981) reaffirms the Commission's concern for preservation of architecturally significant buildings and acknowledges the Director's intent to recommend denial of projects that propose to demolish significant buildings. No buildings on the project site are included on this list.

DOWNTOWN PLAN CATEGORIES

The Downtown Plan establishes four categories of architecturally important structures. The Plan states (p. 66) "This Plan proposes a preservation strategy that would require that 271 buildings (called significant buildings in this Plan) be retained, while providing incentives to encourage the retention of 223 other important, but less significant buildings (called contributory buildings). They are shown on Map 12 in the Plan. Both classes of buildings would be entitled to 'Transferable Development Rights.'"

The following material, taken from the Plan, describes the categories and briefly identifies preservation strategies.

Significant Buildings

Those buildings of the highest architectural and environmental importance--buildings whose demolition would constitute an irreplaceable loss to the quality and character of downtown--would be required to be retained. There are 271 of these buildings. They include all buildings rated by Heritage as excellent in either architectural quality or relationship to the environment, or very good in both. (This covers all buildings rated "A" by Heritage and most of the buildings rated "B".)

These buildings--referred to in the Plan as significant buildings--are divided into Category I and Category II, the difference being in the extent of alteration allowed There are 235 significant buildings in Category I ([listed] in Table 4 [of the Plan]) and 37 significant buildings in Category II... .

Contributory Buildings

The Downtown Plan proposes to encourage, but not require, retention of other buildings contributing to the quality and character of downtown. these buildings, called contributory buildings, consist of two groups:

Category III

- Buildings rated very good in architectural quality, but lower than very good in relationship to the environment, or vice versa, and located outside conservation districts. (These buildings were rated "B" by Heritage.) There are 21 of these buildings. They are listed on Table 6 [of the Plan].

Category IV

- Buildings rated very good in architectural quality, but lower than very good in relationship to the environment or vice versa and which are located in a conservation district. (These buildings were rated "B" by Heritage.) There are 15 of them.
- Buildings with "contextual value" to a conservation district. These contextual buildings are buildings that themselves are not highly rated in architectural quality and relationship to the environment, but do make a substantial contribution to the "quality" of an area that contains a number of highly-rated buildings and that is proposed to be given special protection as a conservation district. (These buildings were rated "C" by Heritage.) The 201 Category IV buildings are listed in Table 7 [of the Plan].

Four conservation districts are established by the Plan:

District 1: Kearny-Market-Mason-Sutter Conservation District

District 2: New Montgomery-Second Street Conservation District

District 3: Commercial-Leidesdorff Conservation District

District 4: Front-California Conservation District

The Downtown Plan does not allow transfer of development rights to parcels when such transfer would result in the substantial alteration or demolition of a Significant or Contributory Building.

APPENDIX D: TRANSPORTATION

TABLE D-1: PASSENGER LEVELS OF SERVICE ON BUS TRANSIT

<u>Level of Service</u>	<u>Description</u>	<u>Passengers per Seat</u>
A	Level of Service A describes a condition of excellent passenger comfort. Passenger loadings are low with fewer than half the seats filled. There is little or no restriction on passenger maneuverability. Passenger loading times do not affect scheduled operation.	0.00-0.50
B	Level of Service B is in the range of passenger comfort with moderate passenger loadings. Passengers still have reasonable freedom of movement on the transit vehicle. Passenger loading times do not affect scheduled operations.	0.51-0.75
C	Level of Service C is still in the zone of passenger comfort, but loadings approach seated capacity and passenger maneuverability on the transit vehicle is beginning to be restricted. Relatively satisfactory operating schedules are still obtained as passenger loading times are not excessive.	0.76-1.00
D	Level of Service D approaches uncomfortable passenger conditions with tolerable numbers of standees. Passengers have restricted freedom to move about on the transit vehicle. Conditions can be tolerated for short periods of time. Passenger loadings begin to affect schedule adherence, as the restricted freedom of movement for passengers requires longer loading times.	1.01-1.25
E	Level of Service E passenger loadings approach manufacturers' recommended maximums and passenger comfort is at low levels. Freedom to move about is substantially diminished. Passenger loading times increase as mobility of passengers on the transit vehicle decreases. Scheduled operation is difficult to maintain at this level. Bunching of buses tends to occur, which can rapidly cause operations to deteriorate.	1.26-1.50
F	Level of Service F describes crush loadings. Passenger comfort and maneuverability are extremely poor. Crush loadings lead to deterioration of scheduled operations through substantially increased loading times.	1.51-1.60

SOURCE: Environmental Science Associates, Inc. from information in the Interim Materials on Highway Capacity, Transportation Research Circular 212, pp. 73-113, Transportation Research Board, 1980.



M OCEAN VIEW - CIVIC CENTER STATION
Wednesday, September 9, 1981 - 8:20 A.M. - Inbound



L TARAVAL - VAN NESS STATION
Wednesday, September 16, 1981 - 4:50 P.M. - Outbound



14 MISSION - MISSION STREET AND SOUTH VAN NESS AVE
Tuesday, September 29, 1981 - 5:45 P.M. - Outbound



N JUDAH - DUBOCE AND CHURCH
Wednesday, June 8, 1983 - 8:00 A.M. - Inbound

FIGURE D-1
PHOTOS OF MUNI PEAK LOADING CONDITIONS

SOURCE: ESA



K INGLESIDE - VAN NESS STATION
Wednesday, September 9, 1981 - 8:00 A.M. - Inbound



N JUDAH - VAN NESS STATION
Wednesday, September 16, 1981 - 5:00 P.M. - Outbound



38 GEARY - VAN NESS AVE. AND O'FARRELL ST.
Wednesday, October 21, 1981 - 9:00 A.M. - Inbound



38 GEARY - VAN NESS AVE. AND GEARY BLVD.
Wednesday, October 21, 1981 - 4:20 P.M. - Outbound

FIGURE D-1 (CONTINUED)
PHOTOS OF MUNI PEAK LOADING CONDITIONS



30X MARINA EXPRESS - BAYSHORE AVE. AND ARIETA AVE.
Wednesday, October 7, 1981 - 8:00 A.M. - Inbound



J CHURCH - CHURCH ST. AND DUBOCE AVE.
Tuesday, September 29, 1981 - 9:00 A.M. - Inbound

PEDESTRIAN ANALYSIS

The pedestrian analysis has been conducted following methods developed by Pushkarev and Zupan in Urban Space for Pedestrians (MIT Press, 1975). Table D-2 shows the relationship between pedestrian flow rates and the flow regimes (categories) used to describe levels of operation. Figure D-2 shows photographs of pedestrian conditions that correspond to the flow regimes.

TABLE D-2: PEDESTRIAN FLOW REGIMEN

<u>Flow Regime/a/</u>	<u>Choice</u>	<u>Conflicts</u>	<u>Flow Rate (p/f/m)/b/</u>
Open	Free Selection	None	less than 0.5
Unimpeded	Some Selection	Minor	0.5 to 2.0
Impeded	Some Selection	High Indirect Interaction	2.1 to 6.0
Constrained	Some Restriction	Multiple	6.1 to 10.0
Crowded	Restricted	High Probability	10.1 to 14.0
<u>Design Limit - Upper Limit of Desirable Flow</u>			
Congested	All Reduced	Frequent	14.1 to 18.0
Jammed	Shuffle Only	Unavoidable	Not applicable/c/

/a/ Photographs of these conditions are shown in Figure D-2.

/b/ P/F/M = Pedestrians per foot of effective sidewalk width per minute.

/c/ For Jammed Flow, the (attempted) flow rate degrades to zero at complete breakdown.

SOURCE: Urban Space for Pedestrians, MIT Press, 1975, Cambridge, MA.



The borderline between IMPEDED and UNIMPEDED FLOW, with about 130 sq ft (12 m²) per person, or a flow rate of about 2 people per min per ft (6.5 per m) of walkway width. Individuals as well as couples visible in this view have a choice of speed and direction of movement. This rate of flow is recommended for design of outdoor walkways in office districts and other less dense parts of downtown areas.



The midpoint of the IMPEDED FLOW range, with about 75 sq ft (6.9 m²) per person, or a flow rate of about 4 people per min per ft (13 per m) of walkway width. Physical conflicts are absent, but pedestrian navigation does require constant indirect interaction with others. This rate of flow is recommended as an upper limit for the design of outdoor walkways in shopping districts and other dense parts of downtown areas.



The uneven nature of UNIMPEDED FLOW. While the people walking in the plaza—which is 17 ft (5.2 m) wide, compared to 23 ft (7 m) in the preceding picture—have almost 130 sq ft (12 m²) per person on the average, the space allocation for the eight individuals in the foreground is closer to 70 sq ft (6.4 m²). Thus, indirect interaction with others is still quite frequent in the upper range of UNIMPEDED FLOW.



Lower range of UNIMPEDED movement, approaching OPEN FLOW. About 350 sq ft (32.2 m²) per person, or a flow rate of less than 1 person per min per ft (3.3 per m) of walkway width. Complete freedom to select the speed and direction of movement; individuals behave quite independently of each other. For a design standard based solely on pedestrian density, this amount of space can be considered excessive.

FIGURE D-2
PHOTOS OF PEDESTRIAN FLOW LEVEL

SOURCE: PUSHKAREV AND ZUPAN

JAMMED FLOW. Space per pedestrian in this view is about 3.8 sq ft (0.35 m²). This is representative of the lower half of the speed-flow curve, where only shuffling movement is possible and even the extremely un-

comfortable maximum flow rate of 25 people per min per ft (82 per m) of walkway width cannot be attained due to lack of space. Photograph by Louis B. Schlieve.



The threshold of **CONGESTED FLOW**. The first eleven people in the view have about 16 sq ft (1.5 m²) per person, corresponding to a flow rate of about 15 people per min per ft (49 per m) of walkway width. The beginnings of congestion are evident in bodily conflicts affecting at least three of the walkers, and in blocked opportunities for walking at a normal pace.



The onset of **CROWDED FLOW**, with an average of about 24 sq ft (2.2 m²) per person, or a flow rate of about 10 people per min per ft (33 per m) of walkway width. Choice of speed is partially restricted, the probability of conflicts is fairly high, passing is difficult. Voluntary groups of two, of which two can be seen in the picture, are maintained, but cause interference. Note also some overflow into the vehicular roadway in the background.



The midpoint of the **CONSTRAINED FLOW** range, with about 30 sq ft (2.8 m²) per person, or a flow rate of about 8 people per min per ft (26 per m) of walkway width. The choice of speed is occasionally restricted, crossing and passing movements are possible, but with interference and with the likelihood of conflicts. The man in the dark suit seems to be able to cross in front of the two women in the foreground quite freely, but in the background near the curb people are having difficulty with passing maneuvers.

FIGURE D-2 (CONTINUED)
PHOTOS OF PEDESTRIAN FLOW LEVELS

SOURCE: PUSHKAREV AND ZUPAN

INTERSECTION ANALYSIS

The capacity analysis of each intersection at which a turning movement count was made used the "critical lane" method. This method of capacity calculation is a summation of maximum conflicting approach lane volumes that gives the capacity of an intersection in vehicles per hour per lane. (This method is explained in detail in an article entitled "Intersection Capacity Measurement Through Critical Movement Summations: A Planning Tool," by Henry B. McInerney and Stephen G. Peterson, January 1971, Traffic Engineering. This method is also explained in, "Interim Materials on Highway Capacity", Transportation Research Circular No. 212, Transportation Research Board, January 1980). The maximum service volume for Level of Service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified Level of Service (see Table D-3). For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio calculated by dividing the existing volume by the capacity at Level of Service E.

TABLE D-3: VEHICULAR LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	less than 0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.	0.61-0.70
C	Level of Service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71-0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.	0.81-0.90
E	Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting upstream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.	0.91-1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

/a/ Capacity is defined as Level of Service E.

SOURCE: San Francisco Department of Public Works, Traffic Division, Bureau of Engineering from Highway Capacity Manual, Highway Research Board, 1965

TABLE D-4: TRAFFIC LEVELS OF SERVICE FOR FREEWAYS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-0.60
B	Level of Service B is in the higher speed range of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted.	0.61-0.70
C	Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained.	0.71-0.80
D	Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.	0.81-0.90
E	Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds (typically about 30 to 35 mph) than in Level D, with volumes at or near the capacity of the highway. Flow is unstable, and there may be stoppages of momentary duration.	0.91-1.00
F	Level of Service F describes forced flow operation at low speeds (less than 30 mph), in which the freeway acts as storage for queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion. In the extreme, both speed and volume can drop to zero.	1.00+

/a/ Capacity is defined as Level of Service E.

SOURCE: Environmental Science Associates, Inc. from information in the Highway Capacity Manual, Special Report 87, Highway Research Board, 1965.

APPENDIX E: AIR QUALITY

TABLE E-1: SAN FRANCISCO AIR POLLUTANT SUMMARY, 1985-1987

STATION: 900 23rd Street, San Francisco

POLLUTANT:	STANDARD		1985	1986	1987
	Federal/a/	State/b/			
OZONE (O ₃) (Oxidant)					
1-hour concentration, ppm					
Highest hourly average	0.12 /d/	0.10	0.09	0.07	0.09
Number of violations			0	0	0
CARBON MONOXIDE (CO)					
1-hour concentration, ppm					
Highest hourly average		20	10.0	9.0	9.0
Number of violations			0	0	0
8-hour concentration, ppm					
Highest 8-hour average		9	15.0 /e/	12.6 /e/	10.0 /e/
Number of violations			3	2	1
TOTAL SUSPENDED PARTICULATE (TSP)					
24-hour concentration, ug/m ³					
Highest 24-hour average	260	100 /f/	158	124	136
Number of violations			5	5	3
Annual concentration, ug/m ³					
Annual Geometric Mean**		60 /f/	62	52	61
Annual excess			Yes	No	Yes
PARTICULATE MATTER-10 MICRON (PM-10)					
24-hour Average (ug/m ³)	150	50			
Highest 24-hour average			--	--	65
Number of violations			--	--	4
LEAD (Pb)					
30-day concentration, mg/m ³					
Highest 30-day average		1.5	0.3	0.2	0.1
Number of violations			0	0	0
NITROGEN DIOXIDE (NO ₂)					
1-hour concentration, ppm					
Highest hourly average		0.25	0.12	0.11	0.15
Number of violations	None		0	0	0
SULFUR DIOXIDE (SO ₂)					
24-hour concentration, ppm					
Highest 24-hour average	0.14	0.05	0.032	0.010	0.010
Number of violations			0	0	0

(continued)

TABLE E-1: SAN FRANCISCO AIR POLLUTANT SUMMARY 1985-1987 (Continued)

NOTE: ppm = parts per million.
 ug/m^3 = micrograms per cubic meter.
 mg/m^3 = milligrams per cubic meter.

/a/ 1985-September 1986 data were collected at 900 23rd Street. October 1987 to present data is a consolidation of measurements taken at 900 23rd Street and 10 Arkansas Street.

/b/ Federal standard, not to be exceeded more than once per year, except for annual average standards, which are not to be exceeded.

/c/ State standard, not to be equaled or exceeded, except for CO standards, which are not to be exceeded.

/d/ The federal standard is in terms of Expected Annual Excesses which is based on a three-year running average.

/e/ Special measurement station at Ellis St. for street level maximums, referred to as a microscale site.

/f/ The California ARB has redefined the state particulate standard to apply to "inhalable" particulates only (i.e., those which have a diameter less than or equal to ten microns). The new standards are $50 \text{ ug}/\text{m}^3$ for 24-hour averages and $30 \text{ ug}/\text{m}^3$ for the annual geometric mean.

/g/ The annual geometric mean is a single number which applies to an entire year of data. "No" indicates that TPS concentrations did not exceed $60(\text{ug})\text{m}^3$.

SOURCE: California Air Resources Board, 1985-1987, California Air Quality Data.

APPENDIX F: TYPICAL NOISE LEVELS

TABLE F-1: TYPICAL NOISE LEVELS

	<u>Decibels</u>	
	110	Pile driver (from 50 feet)
Very Loud	100	
		Light helicopter take-off (from 125 feet)
	90	
		Diesel truck (from 50 feet)
	80	
Loud		Radio or TV playing in Living Room
	70	
		Passenger car on city street (from sidewalk)
	60	
Quiet	50	
	40	
Very Quiet		Whisper
		Rustle of paper
	30	

SOURCE: Department of City Planning, "A Proposal for Citizen Review: Transportation Noise, Environmental Protection Element of the Comprehensive Plan of San Francisco," August, 1984.

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